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Software repositories with collaborators and students:
- Dynamic Modeling in R (dynr) https://dynrr.github.io/
- Bayesian multilevel vector autoregressive (VAR) model
  https://github.com/yanlingli1/Bayesian-mlVAR
- Zero-inflated regime-switching models:
  https://github.com/yanlingli1/Bayesianforecast-RSZIMLP

EDUCATION

2004   Ph.D.   Quantitative Psychology, University of Virginia, Charlottesville, VA
                 Advisor: John R. Nesselroade
                 Dissertation: Fitting Linear and Nonlinear Dynamic Models Using Different Kalman Filter Approaches.

2001   M.A.   Quantitative Psychology. University of Virginia, Charlottesville, VA
                 Advisor: John R. Nesselroade
                 Thesis: The Use of Differential Equations and Their Empirical Validity in Modeling Continuous Human Adaptive Processes

1998   B.S.   Psychology, Summa Cum Laude, Drexel University, Philadelphia, PA

PROFESSIONAL AFFILIATION

2017 –   Professor, Department of Human Development and Family Studies, Pennsylvania State University/co-fund faculty of the Social Science Research Institute;

2013 –   Affiliate faculty of the Institute for Computational and Data Sciences at Penn State

2012 – 2017   Associate Professor, Department of Human Development and Family Studies, Pennsylvania State University/co-fund faculty of the Social Science Research Institute

2007 –2012   Assistant Professor, Department of Psychology, University of North Carolina

2005 – 2007   Assistant Professor, Department of Psychology, University of Notre Dame

2005 – 2006   Visiting scientist, Max Planck Institute for Human Development, Berlin, Germany

2004 – 2005   Assistant Research Professor, Department of Psychology, University of Notre Dame

1999 – 2004   Graduate student and research assistant, Institute for Developmental & Health Research Methodology, University of Virginia

2000 – 2004   Teaching assistant, Department of Psychology, University of Virginia

HONORS & AWARDS

2022   President Elect, Society of Multivariate Experimental Psychology

2015   Early Career Award, International Psychometric Society

2014   Cattell Early Career Award, Society of Multivariate Experimental Psychology

2012   Elected member, Society of Multivariate Experimental Psychology

2005   Humboldt Research fellow, Alexander von Humboldt Foundation, Germany

2004   Dissertation Award from the Society of Multivariate Experimental Psychology (SMEP)

2001   Student travel award from the Society of Multivariate Experimental Psychology (SMEP) to attend the Notre Dame Series on Quantitative Methodology.

2000 – 2003   Teaching fellowship, University of Virginia

1999 – 2003   Presidential Fellowship, University of Virginia

1999   Santa Fe Institute student scholarship to attend Complex Systems Summer School organized by the Santa Fe Institute

1995 – 1997   Distinction Award, HELP Institute (in Malaysia)
1997 – 1998   Anthony J. Drexel Scholarship, Drexel University

SERVICE/OUTREACH

National and International Service

Editorial Service

2011 – 2019	Associated Editor, Psychometrika
2010 –2012	Consulting editor, Psychological Methods
2016 --	
2013 – 2016	Associate Editor, Psychological Methods
2014 – 2017	Editorial Advisory Board, Society of Multivariate Experimental Psychology (SMEP), publisher of Multivariate Behavioral Research
2015 – 2021	Editorial Advisory Board, International Psychometric Society, Publisher of Psychometrika
2016	Panelist, National Institutes of Health Pathways to Prevention Workshop: Advancing Research to Prevent Youth Suicide

Ad-hoc reviewer for scholarly journals

Multivariate Behavioral Research; British Journal of Mathematical and Statistical Psychology Psychometrika; Psychological Methods; Journal of the American Statistical Association; Journal of Multivariate Analysis; Psychology and Aging; IEEE Transactions on Signal Processing; IEEE Conference on Industrial Electronics and Applications; Infant and Child Development; Journal of Abnormal Psychology; Statistics and Its Interface; Journal of Personality and Social Psychology; Journal of Mathematical Psychology; Structural Equation Modeling

Reviewer for grant agencies/awards

2009-present	External reviewer, National Science Foundation
2021, 2022, 2023	Reviewer, National Institutes of Health

Reviewer for scholarly conferences

2011	Society for Research in Child Development 2012 Themed Meeting: Developmental Methodology

Conference organizer

2006 – 2007	Chair, Notre Dame Series on Quantitative Methodologies, University of Notre Dame. Conference title: Advances in state-space modeling techniques (co-organized with Guangjian Zhang).
2007 – 2009	Organization committee of the International and Annual Meetings of the Psychometric Society (IMPS).
2023	Festschrift honoring the work of Peter C. M. Molenaar

University committee service

2020-present	Director, Quantitative Developmental Systems Methodology) unit within The Social Science Research Institute (SSRI), which provides within- and across-campus statistical and methodological consulting services on topics such as research design, statistical analysis and power/sample size calculation; and an affiliate faculty of the Institute for Computational and Data Sciences at Penn State.
2019	RCCI committee
2019	Judge, College of HHD Graduate Research Exhibition
2019	SIRO search committee
2014-2016	ICS High Performance Computing Committee
2013-2015	ICS Research Data Committee
2014-present	Strategic Planning Committee, Institute for CyberScience (ICS)
2013-present	Institute for CyberScience (ICS) Coordinating Committee for Advanced Cyberinfrastructure
2014	Search Committee, Interdisciplinary Methodologist position, Department of Biobehavioral Health
2019	Search Committee, Strategic Interdisciplinary Research Office (SIRO) Proposal Developer

Departmental committee service

2022	Mentoring committee
2020	Member, Methodology faculty positions search committee
2019	Member, Promotion, Tenure and Evaluation committee member
2018	Chair, Professional Planning Development and Evaluation (PPD&E) committee
2017	Member, Graduate Admissions committee
2014 – 2016	Member, Promotion, Tenure and Evaluation committee
2013 – 2014	Member, Professional Planning Development and Evaluation (PPD&E)

University of North Carolina

2009 –	Organizer, quantitative psychology forum
2008 –	Faculty advisor of *Zetas*, quantitative psychology student organization
2011, 2012	Review committee, Baughman Dissertation Awards

University of Notre Dame

2006	Member, quantitative search committee
2006	Member, data manager search committee
2006 – 2007	Member, space and security committee
2004 – 2007	Member, colloquium committee

International
2014	External consultant and advisor, search committee, University of Vienna methods faculty hire.

GRANT SUPPORT

External

Pending:

Co-investigator: NIH: Expanding the pelvic floor stress continuum: Incorporating voicing into the current framework for understanding urinary incontinence in women 2/1/2022-1/31/2027. PIs: Nicole M. Etter and Aliza Rudavsky. OSP # 224175

Methodology mentor: NIH: Dynamic relationship between sleep and obesogenic eating behaviors in children. PI: Emily Hohman. OSP# 221705

Funded:

Methodology mentor: NIH: Effects of Alcohol and Tobacco Co-use on Momentary Subjective Cannabis Effects: Risks for Increasingly Hazardous Cannabis Use. Primary Investigator: Margaret Bedillion; PI: Emily Ensell. OSP# 225670, 2022

Methodology mentor: NIH: Caregiver-Child Communication Following Child Maltreatment: A Dynamic Systems Approach (F31 HD110086-01). PI: Anneke Olson

Co-investigator: NIH: Personalized Prenatal Weight Gain Intervention Using Control Systems Engineering (Renewal). 2023-2027. PI: Danielle Downs OSP # 219712

Co-investigator: NIH. The Biostatistics Research Center for the Impaired Awareness of Hypoglycemia Consortium (OSP #: 230143). PI: Vernon Chinchilli. 2022-2027.

Co-investigator: National Center for Advancing Translational Sciences. UL1 - Penn State Clinical and Translational Science Institute (5 UL1TR002014-06; OSP #: 230725). MPIs: Jennifer Kraschnewski & Lawrence Sinoway.

Subcontract PI: NIH/Sage Bionetworks: Mobile Post-Acute Sequelae of SARS-CoV-2 Data Repository (mPASC; OT2 HL161847-01). 10/1/2021 - 09/30/2025. PI: Larsson Omberg, OSP# 229358

PI: NSF. DGE-1806874: Individualized Pathways and Resources to Adaptive Control Theory-Inspired Scientific Education (iPRACTISE). Co-PI Nilam Ram. 7/1/2018-6/30/2023. OSP # 198173

PI: NIH. U24AA027684. The Center for Innovation in Intensive Longitudinal Studies (CIILS). 10/01/2018 to 08/31/2023. OSP # 197565.

Subcontract PI: ECHO Coordinating Center. Opportunities and Infrastructure Fund (OIF). Duke University/NIH. 5 U2C OD023375-06

Subcontract PI: Masaryk University and University of Ostrava. Data Processing and Model Fitting Tools with the Masaryk University 6/2021-06/2023. (OSP # 246663 & 246664)

Co-investigator: NIH. Parent Self-Regulation, Parent-Child Coregulation, and Harsh Discipline (OSP: 200014). PI: Erika Lunkenheimer. 2019-2024.

Co-investigator: NICHD. Toward a Unifying Model of Self-Regulation and Its Development R01MH61388. PIs: Pamela Cole and Nilam Ram. 2014-2020.

Co-investigator: NIH. Investigating dynamic neural systems underlying changing social representations of faces during development 188454. PI: Suzy Scherf. 2017-2022.

Co-investigator: NIH. Early Growth and Development Study: A Family of Adoption Studies (EGDS) 39113. PI: Jenae Neiderheiser. 2016-2023.

Principal Investigator (with Peter Molenaar): Center for Individual Opportunity. Personalizing online short courses to accelerate learning (191654). Jan 1, 2017 - Dec 31, 2017. $27,855.

Principal investigator: National Science Foundation. Developing Dynamic Tools for Analyzing Irregularly Spaced Longitudinal Affect Data (SES-1357666). March, 2014-Feb, 2017. $297,170

Principal investigator: Modeling the Dynamics of Early Communication and Development (R01GM105004). National Institutes of Health. 2013–2017. Multiple PI submission with Daniel Messinger (University of Miami) and Jeff Cohn (University of Pittsburgh). Penn State budget: $535,308

Principal investigator: DHB Collaborative Research: Developing Non-Stationary and Network-based Methods for Modeling the Perception and Physiology of Emotion (BCS-0826844). National Science Foundation. 8/1/2008 – 7/31/2012, $720,070 (with UC Davis). Total costs for UNC: $609,545. Funded.

Co-investigator: The Prevention and Methodology Training Program (PAMT; T32 DA017629). Methodology mentor. PIs: Diana Fishbein and Linda Collins. Associate Training Director: Bethany Bray.

Co-investigator: Training Interdisciplinary Education Scientists (TIES) T32 Training program. Methodology mentor. PIs: Tom Farmer and Karen Bierman

Co-investigator: Biological and Psychosocial Pathways to Health Aging (PATHWAYS) T32 Training Program. Methodology mentor. PIs: David Almeida (Training Director), Lynn Martire (Associate Training Director), Martin Sliwinski, Jennifer Graham-Engeland, Larry Kenney, & Orfeu Buxton

Co-investigator: Promoting Cancer-Related Behavior Change through Positive Emotions (R01). Role: Co-investigator. PI: Barbara Fredrickson. National Cancer Institute. 2012–2015.

Co-investigator: Toward a unifying model of self-regulation and its development. National Institutes of Health 2014-2019. PIs: Pamela Cole and Nilam Ram (Penn State). Penn State budget: $3,558,396.

Co-investigator: Affective and Genomic Mediators of Sustained Behavior Change (R01NR012899-01). Role: Co-Investigator. PI: Barbara Fredrickson. 2010 –2012. National Institute of Nursing Research.

Co-investigator: Selective Attention and Control Mechanisms in the Brain (R01 MH066034). PI: Joseph Hopfinger. National Institute of Mental Health. 05/05/2009 – 04/30/2011. $853,071.

Co-investigator: Notre Dame Study of Resiliency in Later Life (R01 AG02357-01-A1). PI: C. S. Bergeman. National Institute on Aging.10/2005 – 9/2009. $1,250,000.

Consultant: University of Ostrava. Data Processing and Model Fitting Tools with the University of Ostrava. 6/8/2021-6/7/2022. OSP # 224428

Advisory Board Member. Tufts University. Continuum (MMDC) Project. PIs: John Geldhof, Richard Learner et al.

Consultant: Naive Observers' Ratings of Behavior: A Multi-Construct Validation PI: Daniel Messinger. National Institute of Child Health and Human Development. 2007 – 2009. (R21HD052062, $275,000).

Consultant: Notre Dame Study of Resiliency in Later Life: Supplemental grant. PI: C.S. Bergeman. National Institutes of Health. 2006 – 2007.

Consultant: Development of Autonomy and Relatedness in Peer Relationships. PI: Joseph P. Allen. National Institute of Mental Health. 2003 – 2008 (R01-MH58066-06)

Consultant: Collaborative Research: Communication, Perturbation, and Early Development. PIs: Daniel S. Messinger & Jeff Cohn. National Science Foundation. 2011-2014

Internal

Principal Investigator (with Akhil Kumar and Bu Zhong). Improving the Dissemination and Personalization and Healthcare Information: A Study of IBS Patients. SSRI Collaborative Fellowship. 2017. One course buy-out for each PI to pursue the proposed research.

Principal investigator: Modeling emotion as chaotic thermostat. University Research Council, University of North Carolina; 2008–2009. $4,950.

Principal investigator: Modeling emotion as chaotic thermostat: pilot study of intra-person dynamics. Institute for Scholarship in the Liberal Arts (ISLA), University of Notre Dame; February, 2005 – February, 2006. $10,925.

Principal investigator: Age differences in emotion regulation and complex skill acquisition. Office of Graduate Research, University of Notre Dame; April, 2005—August, 2006. $10,000.

Principal investigator: Integrated physiological/multi-model laboratory equipment renewal proposal. The Institute of Scholarship in the Liberal Arts, University of Notre Dame in Oct, 2006. $110,000.

PUBLICATIONS

* Research in collaboration with graduate/undergraduate students.

Books

Ferrer, E., & **Chow, S-M.** (in progress). The Dynamics of Dyadic Interactions. New York: Springer.

Gates, K., Molenaar, **Chow, S.-M., &** P. C. M.(2023). *Analysis of Intra-Individual Variation: Systems Approaches to Human Process Analysis*. New York, NY: CRC Press/Taylor & Francis.

Van der Ark, A., Bolt, D.,Wang, W-C., Douglas, J., & **Chow, S-M.** (Eds), (2015). Quantitative Psychology Research: Proceedings of the 79th Annual International Meeting of the Psychometric Society. Switzerland: Springer International Publishing.

Chow, S-M., Ferrer, E., & Hsieh, F. (Eds.) (2009). Statistical methods for modeling human dynamics: An interdisciplinary dialogue. Notre Dame Series on Quantitative Methodology (Vol. 4). New York, NY: Taylor & Francis.

Refereed Articles and Book Chapters
* Research in collaboration with postdocts/graduate and undergraduate students.
[+] Equal contributions between the first and second authors

Published/In Press/ Under Review

Elavsky, S., Burda, M., Cipryan, L., Kutáč, P., Bužga, M., Jandackova, V., **Chow, S-M.**, Jandacka, D. (accepted). Physical Activity and Menopausal Symptoms: Evaluating the Contribution of Obesity, Fitness and Ambient Air-Pollution Status. *Menopause*.

Knapova, K., Cho, Y. W., **Chow, S-M.**, Kuhnova, J., & Elavsky, S. (2024, in press). From intention to behavior: Within- and between-person moderators of the

relationship between intention and physical activity. *Psychology of Sport and Exercise*, 71. 10.1016/j.psychsport.2023.102566

Ji, L., Liu, M., Master, L. Buxton, O. M., Kumara, S., & **Chow, S-M.** (in prep) Sleep-Wake Classification of Actigraphy Data with XGBoost Using Dynamic Features.

Chow, S-M., & *Lee, J., *Park, J. J., Kuruppumullage P. D., Hammel T., Hallquist, M. N., Nord, E. A., Oravecz, Z., Perry, H. L., Lesser, L. M., & Pearl, D. K. (in press, 2024). Personalized Education through Individualized Pathways and Resources to Adaptive Control Theory-Inspired Scientific Education (iPRACTISE): Proof-of-Concept Studies for Designing and Evaluating Personalized Education. *Journal of Statistics and Data Science Education*.

*Park, J. J., **Chow, S. M.**, Epskamp, S., & Molenaar, P. (in press, 2023). Subgrouping with chain graphical VAR models. *Multivariate Behavioral Research*, Preprint: 10.31234/osf.io/u3ve8

*Park, J. J., **Chow, S-M.**, & Molenaar, P. C. M. (in press, 2023). What the Fuzz!? Leveraging Ambiguity in Dynamic Network Models. In Hoyle, R. H, *Structural Equation Modeling: Concepts, Issues, and Applications* (2nd Ed.). New York: Guilford.

*Park, J. J., Fisher, Z. F., **Chow, S. M.**, & Molenaar, P. C. (2023). Evaluating discrete time methods for subgrouping continuous processes. *Multivariate Behavioral Research*, 1-13. DOI: 10.1080/00273171.2023.2235685

*Park, J. J., Fisher, Z. F., **Chow, S. M.**, & Molenaar, P. C. (2023). On subgrouping continuous processes in discrete time. *Multivariate Behavioral Research*, 58(1), 154-155. Abstract published by the Society of Multivariate Experimental Psychology. DOI: 10.1080/00273171.2022.2160957.

*Ou, L. Hunter, M. D., Lu, Z., Stifter, C. A., & **Chow, S-M.** (accepted with revisions, 2023). Estimation of nonlinear mixed-effects continuous-time models using the continuous-discrete Extended Kalman filter. *British Journal of Mathematical and Statistical Psychology*.

*Li, Y., Oravecz, Z., Ji, L., & **Chow, S-M.** (second revision and resubmission, 2023). Multiple Imputation with Factor Scores: A Practical Approach for Handling Simultaneous Missingness across Items in Longitudinal Designs.

*Losardo, D., **Chow, S-M.**, Panter, A. T., Burkley, M., & Burkley, E. (in press, 2023). Ecological momentary assessment (EMA) designs with planned missingness. In M. Stemmler, W. Wiedermann, & F. L. Huang. Dependent Data in Social Sciences Research (2nd ed.).

*Cho, Y. W., **Chow, S-M.**, Marini C. M., & Martire L. M. (second revision resubmitted, 2023). Multilevel Latent Differential Structural Equation Model with Short Time Series and Time-Varying Covariates: A Comparison of Frequentist and Bayesian Estimators. *Multivariate Behavioral Research*.

Ahn. Y. A., Ertuğrul, I. Ö., **Chow, S-M.**, Cohn, J. F., & Messinger, D. S. (in press, 2023). Automated measurement of infant and mother Duchenne facial expressions in the Face-to-Face/Still-Face. *Infancy*.

Luong, G. Miller, J. W., Kirkland, D., Morse, J. L., Arzus, C. Diehl, M. **Chow, S-M.**, & Riediger, M. (2023). Valuing negative affect weakens affect-health linkages: Similarities and differences across affect valuation measures. *Motivation and Emotion*.

Olson, A. E., **Chow, S-M.**, Jones, D. E., & Shenk, C. E. (in press, 2023). Child maltreatment, parent-child relationship quality, and parental monitoring in relation to adolescent behavior problems: Disaggregating between- and within-person effects. *Child Abuse & Neglect*.

Ji, L., Li, Y., Potter, L. N., Lam, C. Y., Nahum-Shani, I., Wetter, D. W., & **Chow, S-M.** (in press, 2023). Multiple imputation of missing data in multilevel ecological momentary assessments: An example using smoking cessation study data. Frontiers in Digital Health. Special issue on Digital Technology for Tobacco Control: Novel Data Collection, Study Designs, and Interventions (Eds: Wetter, D. W., I. Nahum-Shani, & L. N. Potter).

Chen, M., **Chow, S-M.**, Oravecz, Z., & Ferrer, E. (2023). Fitting Bayesian Stochastic Differential Equation Models with Mixed Effects through A Filtering Approach. *Multivariate Behavioral Research*. DOI: 10.1080/00273171.2023.2171354

Chow, S-M., Nahum-Shani, I, Baker, J. T, Spruijt-Metz, D, Allen, N. B, Auerbach, R. P., Dunton, G. F., Friedman, N. P., Intille, S., Klasnja, P., Marlin, B., Nock, M. K., Rauch, S. L., Pavel, M., Vrieze, S., Wetter, D.W., Kleiman, E.M., Brick, T.R., Perry, H., Wolff-Hughes, D.L. & Intensive Longitudinal Health Behavior Network (ILHBN). (2023). The Intensive Longitudinal Health Behavior Network (ILHBN): Challenges, opportunities, and solutions from harmonizing data under heterogeneous study designs, target populations, and measurement protocols. *Translational Behavioral Medicine*, 13, 7-16. DOI: https://doi.org/10.1093/tbm/ibac069

Chow, S-M., Losardo, D., *Park, J., & Molenaar, P. C. M. (2023). Continuous-Time Dynamic Models: Connections to Structural Equation Models and Other Discrete-Time Models. In Hoyle, R. H, Structural Equation Modeling: Concepts, Issues, and Applications (2nd Ed.). New York: Guilford.

Fredman, S. J., Fischer, M. S., Baucom, D. H., Le, Y., Taverna, E. C., **Chow, S-M.**, Ram, N., & Marshall, A. D. (2022). PTSD symptom cluster severity predicts momentary emotion dynamics during couple conversations. *Behavior Therapy*. Advance online publication. https://doi.org/10.1016/j.beth.2022.09.004

Fisher, Z., **Chow, S-M.**, Molenaar, P. C. M., Fredrickson, B. & Pipiras, V. & Gates, K. (2022). A Square-Root Second-Order Extended Kalman Filtering Approach for Estimating Smoothly Time-Varying Parameters. *Multivariate Behavioral Research*, 57, 134-152. DOI: 10.1080/00273171.2020.1815513

*Li, Y., Oravecz, Z., *Zhou, S., Bodovski, Y. Barnett, I. J., Chi, G., Zhou, Y., Friedman, N. P., Vrieze, S. I., & **Chow, S-M.** (2022). Bayesian Forecasting with a Regime-Switching Zero-Inflated Multilevel Poisson Regression Model: An Application to Adolescent Alcohol Use with Spatial Covariates. *Psychometrika*, 87, 376-402. DOI: 10.1007/s11336-021-09831-9

Chow, S-M., *Lee, J, Hofman, A., van der Maas, H. L. J., Pearl, D. K., & Molenaar, P. C. M. (2022). Control theory forecasts of optimal training dosage to facilitate children's arithmetic learning in a digital educational application. Special Issue on "Models for Intensive Longitudinal Data and Forecasting," *Psychometrika, 87*, 559-592, DOI: 10.1007/s11336-021-09829-3

*Le, Y., Fredman, S. J., Marshall, A.D., **Chow, S.M.**, McDaniel, B. T., Laurenceau, J.-P.,

& Feinberg, M. E. (2022). Relational impacts of capitalization among new parents. *Journal of Family Psychology*, 36(1):69-79. DOI: 10.1037/fam0000847. PMID: 33764085.

*Le, Y., Chen, M., Fredman, S. J., **Chow, S. M.**, Oravecz, Z., Slep, A. M. S., & Heyman, R. E. (submitted). Modeling interactive dynamics in romantic couples as connected pendulums.

Petrie, D. J., **Chow, S.-M.**, & Geier, C. F. (2021). Effective Connectivity during an Avoidance-Based Pavlovian-to-Instrumental Transfer Task. *Brain Sciences*, 11(11). https://doi.org/10.3390/brainsci11111472

Luong, G., Coatsworth, J. D., & **Chow, S.-M.** (2021). Post-traumatic growth in later adulthood: Disentangling shorter- and longer-term changes following transitions into senior housing. In E. Jayawickreme & F. J. Infurna (Eds.), Redesigning Research on Post-Traumatic Growth: Challenges, Pitfalls, and New Directions (pp. 105-122). Oxford University Press.

Zhou, S., Li, Y., Chi, G., Yin, J., Oravecz, Z., Bodovski, Y., Friedman, N., Vrieze, S. I., & **Chow, S-M.** (2021). GPS2space: An Open-source Python Library for Spatial Measure Extraction from GPS Data. *Journal of Behavioral Data Science*, *1(2)*, 130-158. DOI: 10.35566/jbds/v1n2/p5

Soriano, E & Lenhard, J., Gonzalez, J., Tennen, H., **Chow, S-M.**, Otto, A., Perndorfer, C., Shen, B-J., Siegel, S., & Laurenceau, J-P. (2021). Spousal Influence on Diabetes Self-care: Moderating Effects of Distress and Relationship Quality on Glycemic Control. *Annals of Behavioral Medicine, 55(2)*, 123-132. DOI: 10.1093/abm/kaaa038.

*Lee, J., **Chow, S-M.**, Lei, P., Wijekumar., K., & Molenaar, P. (2021). Dynamics of learning: Time-varying feedback effects within the Intelligent Tutoring System of Structure Strategy (ITSS). *Journal of Educational Technology Research and Development*, 69, 2963–2984. DOI: 10.1007/s11423-021-10049-w

*Li, Y., *Wood, J., *Ji, L., **Chow, S-M.**, & Oravecz, Z. (in press, 2022). Fitting Multilevel Vector Autoregressive Models in Stan, JAGS, and Mplus. *Structural Equation Modeling*. DOI: 10.1080/10705511.2021.1911657. Github code repository: https://github.com/yanlingli1/Bayesian-mlVAR

*Chen, M., **Chow, S-M.**, Hammal, Z., Cohn, J. & Messinger, D. (2021). A Person- and time-varying vector autoregressive model to capture interactive infant-mother head movement dynamics. *Multivariate Behavioral Research, 56*(5)*, 739-767. DOI: 10.1080/00273171.2020.1762065

Cole, P.M., Lougheed, J.P., **Chow, S-M.** & Ram, N. (2020). Development of emotion Regulation dynamics across early childhood: A Multiple time-scale approach. *Affective Science 1*, 28–41. DOI: 10.1007/s42761-020-00004-y

Bastiaansen, J. A., Kunkels, Y. K. et al. (2020). Time to Get Personal? The Impact of Researchers' Choices on the Selection of Treatment Targets Using the Experience Sampling Methodology. Special issue of *Journal of Psychosomatic Research* (Eds: Rosmalen, Judith & Ceulemans, Eva), 137. DOI: 10.1016/j.jpsychores.2020.110211

*Hung, H-J., Lee, W-C., Yang, D-N., Shen, C-Y., Lei, Z. & **Chow, S-M**. (2020). Efficient algorithms toward network intervention. In Proceedings of The Web Conference 2020 (WWW '20), April 20–24, 2020, Taipei, Taiwan. ACM,

New York, NY, USA. DOI: 10.1145/3366423.3380269

*Ji, L., **Chow, S-M.**, Crosby, B., & Teti, D. (2020). Exploring Sleep Dynamics of Mother-Infant Dyads Using a Regime-Switching Vector Autoregressive Model (Abstract). *Multivariate Behavioral Research, 55*(1), 150-151.

Chow, S-M., & *Chen, M. (2020). A Review of "Nonparametric Models for Longitudinal Data". *Journal of Educational and Behavioral Statistics, 45*(3), 369-373. DOI: 10.3102/1076998620915291

*Liu C, Ji L, **Chow S-M.**, Kang B, Leve LD, Shaw DS, Ganiban JM, Natsuaki MN, Reiss D, Neiderhiser JM (2020). Child Effects on Parental Negativity: The Role of Heritable and Prenatal Factors. Child Dev. 2020 Sep;91(5):e1064-e1081. doi: 10.1111/cdev.13404. Epub 2020 Aug 1. PubMed PMID: 32738072; PubMed Central PMCID: PMC7722043.

*Park, J., **Chow, S-M.**, Fisher, Z. F., & Molenaar, P. C. M. (2021). Affect and Personality: Ramifications of Modeling (Non-)Directionality in Dynamic Network Models. Joint Special Issue of the *European Journal of Psychological Assessment* and the *European Journal of Personality*.

Chow, S-M., *You, D-J., & *Clouthier, T. (2020). A regime-switching framework for formulating multi-phase linear and nonlinear growth curves (pp. 193-234). In H. Jiao & R. W. Lissitz (Eds.). MARCES Series: Innovative Psychometric Modeling and Methods. Charlotte, NC: Information Age Publishing, Inc. ISBN: 9781648022241

*Ji, L., *Chen, M., *Lu, Z-H., Oravecz, Z., & **Chow, S-M.** (2020). A Bayesian vector autoregressive (VAR) model with nonignorable missingness in dependent variables and covariates: Development, evaluation, and application to family processes. *Structural Equation Modeling, 27*(3), 442-467. DOI: 10.1080/10705511.2019.1623681

*You, D-J., Hunter, M. D., Chen, M., & **Chow, S-M.** (2020). A diagnostic procedure for detecting model misspecification in linear state–space. *Multivariate Behavioral Research, 55*(2), 231-255. DOI: 10.1080/00273171.2019.1627659.

*Li, Y., *Ji, L., Oravecz, Z., Brick, Timothy R., Hunter, M. D., & **Chow, S-M.** (2019). dynr.mi: An R Program for Multiple Imputation in Dynamic Modeling. *International Journal of Computer, Electrical, Automation, Control and Information Engineering, 13*(5), 302-311. http://waset.org/Publications?p=149, eISSN:1307-6892. World Academy of Science, Engineering and Technology, International Science Index 149, 2019. Invited copy based on publication in the Proceedings of the ICCSS 2019.

*Li, Y., Ji, L., Oravecz, Z., Hunter, M. D., & **Chow, S-M**. (2019). dynr.mi: An R program for multiple imputation in dynamic modeling. *Proceedings of the International Conference on Computational Social Science (ICCSS 2019)*, Amsterdam, The Netherlands, 305-314.

Chow, S-M. (2019). Practical Tools and Guidelines for Exploring and Fitting Linear and Nonlinear Dynamical Systems Models. *Multivariate Behavioral Research*, 54(5), 690-718. https://www.nihms.nih.gov/pmc/articlerender.fcgi?artid=1520409

*Lu, Z-H., **Chow, S-M.**, Ram, N., & Cole, P. M. (2019). Zero-inflated regime-switching stochastic differential equation models for highly

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SCHOLARLY PRESENTATIONS

Invited Presentations

Pavel, M., & Chow, S-M. (March, 2019). Overview of the Intensive Longitudinal Health Behavior Network (ILHBN). Invited talk presented at the 2019 Multiscale Modeling Consortium Meeting, National Institutes of Health, Bethesda, MD.

Chow, S-M., You, D.J, & Clothier, T. (Nov, 2018). A Regime-Switching Structural Equation Modeling Framework for Formulating Multi-Phase Linear and Nonlinear Growth Curve Models. Invited talk presented at the 18th Annual Maryland Assessment Research Center (MARC) Conference: Innovative Psychometric Modeling and Methods, College Park, MD.

Chow, S-M. (March, 2015). Regime-switching dynamical systems models. Invited talk presented in the Department of Psychology of McGill University, Montreal, Canada.

Chow, S-M. (March, 2015). Exploring and fitting dynamical systems models. Invited talk presented in the Department of Psychology of Georgia Institute of Technology, Atlanta, GA.

Chow, S-M., *Ou, L., & Messinger, D. (November, 2014). Representing trends, moment-to-moment variability and non-stationarities in dyadic processes using state-space modeling techniques. Invited talk presented at the Innovative Assessment of Collaboration (IAC) meeting organized by the Educational Testing Services (ETS), Arlington, VA.

Chow, S-M. (July 2014). Dynamical systems modeling in the social and behavioral sciences. Invited talk given at the Annual Psychometric Society Conference, Madison, Wisconsin.

Chow, S-M. (April, 2014). Regime-Switching Longitudinal Models. Paper presented at the 2014 Conference of the National Council on Measurement in Education, Philadelphia, PA.

Chow, S-M. (April 2012). *Longitudinal regime-switching models as a way to capture between- and within-person heterogeneities in change*. Invited talk presented at the Center for Research Methods and Data Analysis, Kansas University.

Chow, S-M., *Hutton, R. S., Witkiewitz, K. & Maisto, Stephen. (Nov, 2011). *Regime-switching longitudinal models*. Invited paper presented at the Inductive Developmental Systems Theory Conference, The Pennsylvania State University, University Park, PA.

Chow., S-M. (May, 2011). *Time-varying parameters as an idiographic filter*. Invited talk presented at the John R. Nesselroade Festschrift, University of Virginia.

Chow., S-M. (Oct, 2010). *Dynamic models with time-varying parameters*. Invited talk presented at the Paul B. Baltes Symposium in honor of John R. Nesselroade, Berlin, Germany.

Chow, S-M. (Sept, 2010). *Applications of difference and differential equation modeling in the social sciences*. Invited paper presented at the Statistical and Applied Mathematical Sciences (SAMSI) Institute, Durham NC, special program on Analysis of Object Data (AOOD).

Chow, S-M. (Sept, 2008). *Detecting discrete shifts in dynamics in multiple-subject state-space models*. Invited paper presented at the Individual Pathways of Change in Learning and Development Conference, The Pennsylvania State University, PA.

Chow, S-M. (July 2007). *State-space modeling of cyclic dynamics*. Invited talk presented at the Workshop on Statistical Methods for Modeling Dynamic Systems, McGill University, Montreal.

Chow, S-M. (May 2007). *State-space models of intraindividual change*. Invited talk presented at Michigan State University.

Chow, S.-M. (Dec, 2006). *Representing emotion as self-regulatory processes using differential equation models*. Invited talk presented at the Research Group of Quantitative Psychology and Individual Differences, Katholieke Universiteit Leuven, Leuven, Brussels.

Chow, S-M. (June 2006). *Fitting nonlinear dynamical systems models using state-space modeling techniques*. Invited state-of-the-art talk presented at the 71th Psychometric Society Conference, Montreal, Canada.

Chow, S-M. (Nov, 2005). *Nonlinear Kalman filter approaches to the estimation of dynamical systems models*. Invited talk presented at the University of California, Davis.

Chow, S.-M. (Feb, 2004). *Differential equation models of age differences in emotion and cognitive functioning*. Invited talk presented at the Center for Lifespan Psychology, Max Planck Institute for Human Development, Berlin, Germany.

Chow, S.-M. (Jan, 2004). *Modeling emotion and cognition as self-regulatory processes using differential equations*. Invited talk presented at the Western Ontario University, London, Ontario, Canada

Chow, S.-M. (Jan, 2004). *Differential equation models of age differences in cognitive functioning*. University of Victoria.

National and International Conference Presentations

Chow, S-M. (2023). Transformations of Continuous-Time Dynamic Models into Alternative Discrete-Time Models: Why, How, and Implications on Causality Inference. Invited keynote address presented at the Advanced Techniques for Longitudinal Data Analysis in Social Science (ATLASS) conference, Bielefeld, Germany.

Chow, S-M. (2023). Putting Behavioral and Social Sciences Back into Digital Health Studies: Benefits, Challenges, and Opportunities from the Intensive Longitudinal

Health Behavior Network (ILHBN). Presentation given at the online NIH Behavioral and Social Sciences Research Festival.

Chow, S-M., Losardo, D., *Park, J., & Molenaar, P. C. M. (2022). Transformations of continuous-time dynamic models into alternative discrete-time models. Presentation given at the 2022 International Society for Data Science and Analytics, South Bend, IN.

Chow, S-M. (2022). Cross-study project updates from the Intensive Longitudinal Health Behavior Network (ILHBN). Presentation given at the annual ILHBN conference, Los Angeles, CA.

Li, Y., Oravecz, Z., Ji, Li & Chow, S-M. (October, 2022). Multiple Imputation with Factor Scores: A Practical Approach for Handling Simultaneous Missingness across Items in Longitudinal Designs. Presentation given at the 2022 Society of Multivariate Experimental Psychology (SMEP) Conference, in Monterey, CA.

Chow, S-M. (2021). The Future of Digital Health: Bridging Behavioral Science & Engineering with Intensive Longitudinal Assessment. Introduced the Intensive Longitudinal Health Behavior Network (ILHBN) at the Plenary Panel of the Online Virtual Conference of the Institute of Electrical and Electronics Engineers (IEEE) World Congress on Services.

Chow, S-M., *Lee, J, Hofman, A., van der Maas, H. L. J., Pearl, D. K., & Molenaar, P. C. M. (July, 2021). Control Theory Forecasts of Optimal Training Dosage to Facilitate Children's Arithmetic Learning in Digital Educational Applications. Presented at the 9th European Congress of Methodology in Valencia, Spain.

Chow, S.-M. (Dec, 2020). Forecasting with dynamical systems models: Why, how, and where do we go from here? Invited talk given at the University of California, Davis, Department of Psychology.

Fredman, S. J., Fischer, M. S., Baucom, D. H., Le, Y., Taverna, E. C., Chow, S.-M., & Marshall, A. D. (2020, November). PTSD symptom clusters predict real time emotion regulatory processes in couples with PTSD during relational intimacy. In M. S. Fischer (Chair), Social processes and psychopathology: Effects of disorders and symptoms on relationships across the lifespan. Symposium conducted at the annual meeting of the Association for Behavioral and Cognitive Therapies, Philadelphia, PA.

Chow, S.-M. (August, 2020). Introductory Overview Lecture: Dynamical Systems. Invited Special Presentation with Hooker, G. at the Joint Statistical Meetings, Philadelphia, PA (Virtual).

Chow, S.-M. (Feb, 2020). Dynamic models of relationships and time. Pre-conference working group meeting organized by Jeff Simpson, Eli Finkel, & Paul W. Eastwick at the Society of Personality and Social Psychology (SPSP), New Orleans, LA.

Chow, S.-M., Lee, J., Park, J. J., Voyack, R., Zhang, A., Gao, Y., & Pearl, D. K. (Feb, 2020). Individualized Pathways and Resources to Adaptive Control Theory-Inspired Scientific Education (iPRACTISE). Poster presented at the National Science Foundation Innovations in Graduate Education (IGE) grantee meeting, Washington DC.

Ahn, Y. A., Bak, T., Onal Ertugrul, I., Banarjee, C., Davila, P., Chow, S., Cohn, J. F., & Messinger, D. (2020, July). Concordant still-face findings for computer vision and

expert FACS coders [Poster presentation]. The 2020 Biennial International Congress of Infant Studies (ICIS), Glasgow, UK. (Virtual Conference)

Fischer, M. S., Fredman, S. J., Baucom, D. H., Taverna, E. C., Le, Y., Chow, S.-M., & Marshall, A. D. (2019, November). Self-reported emotion regulation difficulties and vocally encoded emotion regulation among couples with PTSD. Poster accepted for presentation at the 53rd annual meeting of the Association for Behavioral and Cognitive Therapies, Atlanta, GA.

Li, Y., Ji, L., Oravecz, Z., Hunter, M. D., & Chow, S-M. (2019, July). dynr.mi: An R Program for Multiple Imputation in Dynamic Modeling. Paper presented at the International Conference on Computational Social Science, Amsterdam, The Netherlands. https://waset.org/downloads/18/presentations/19nl050197[2].pdf

Fredman, S. J., Fischer, M. S., Baucom, D. H., Taverna, E. C., Le, Y., Chow, S.-M., & Marshall, A. D. (2019, November). Real-time interpersonal linkages in emotional arousal in couples with PTSD during relationship conflict. In S. J. Fredman (Chair), The interpersonal regulation of emotion within couples coping with unique stressors. Paper presented at the 53rd annual meeting of the Association for Behavioral and Cognitive Therapies, Atlanta, GA.

Le, Y., Fredman, S. J., Chow, S.-M., Oravecz, Z., Smith Slep, A. M., Heyman, R. E. (2018, November). Temporal dynamics of anger across two emotion channels in romantic couples. In M. S. Fischer (Chair), Merging theory with methodological advances: Empirical applications of a dynamical systems framework for an in-depth understanding of couple functioning. Paper presented at the 52nd annual meeting of the Association for Behavioral and Cognitive Therapies, Washington, DC.

Chow, S-M.. (Oct, 2019). Recent updates in dynr. Paper presented at Society of Multivariate Experimental Psychology (SMEP) annual conference, Baltimore, MD.

Chow, S-M., & Chen, M. (July, 2019). Dynamic models of intraindividual variability with varying coefficients. Paper presented at International Meeting of Psychometric Society, Santiago, Chile.

Lee, J., Park, J. J., Voyack, R., Zhang, A., Gao, Y., Pearl, D. K., & Chow, S. M. (May, 2019). Individualized Pathways and Resources to Adaptive Control Theory-Inspired Scientific Education (iPRACTISE). Poster presented at the Bi-Annual Meeting of the United States Conference on Teaching Statistics (USCOTS), State College, PA.

Ji, L., Chow, S-M., Schermerhorn, A. C., Jacobson, N. C., Cummings, E. M. (2018, May). *Handling Missing Data in the Modeling of Dyadic Intensive Longitudinal Data.* Paper presentation: Association for Psychological Science, San Francisco, CA.

Chen, M., Chow, S-.M., Hammal, Z., Messinger, D. & Cohn, J. (2019, March). Time-series Modeling of Infant-mother Head Movement Dynamics. Poster presented at the 2019 Society for Research in Child Development Biennial Meeting, Baltimore, MD

Chow, S-M., & Pavel, M. (2019). Measuring and Modeling Intensive Longitudinal Health Behaviors: Overview of Projects in the Intensive Longitudinal Health Behavior Network (ILHBN), Part I. Poster presented at the 2019 Multiscale

Modeling Consortium Meeting. National Institutes of Health, Bethesda, MD.

Pavel, M., & Chow, S-M. (2019). Measuring and Modeling Intensive Longitudinal Health Behaviors: Overview of Projects in the Intensive Longitudinal Health Behavior Network (ILHBN), Part II. Poster presented at the 2019 Multiscale Modeling Consortium Meeting. National Institutes of Health, Bethesda, MD.

Chow, S-M., Dongjun You, Dennis Pearl, Ryan Voyack, Peter Molenaar, Jungmin Lee, Puiwa Lei, Matthew Beckman, Eric Nord, Nilam Ram, and other iPRACTISE team members (Oct, 2018). Individualized Pathways and Resources to Adaptive Control Theory-Inspired Scientific Education (iPRACTISE). Talk presented at the Annual Meeting of the Society of Multivariate Experimental Psychology (SMEP), Albuquerque, NM.

Chen, M., Chow, S.-M. & Hunter, M. D. (2018, July). Model Selection in Continuous-Time Dynamical Systems Models with Time-varying Parameters. Presented at International Meeting of Psychometric Society, New York, NY

Chow, S-M., Tang, N., Ibrahim, J. G. and Zhu, H. (2017). Bayesian Sensitivity Analysis of Dynamic Factor Analysis Models with Nonignorable Missingness. Paper presented at the International Meeting of the Psychometric Society, Zurich, Switzerland.

Hunter, M. D., *Ou, L., Reddy, S.N., & Chow, S. (2016). Comparing Numerical and Analytic Solutions to Stochastic Differential Equations. Talk presented at the RC33 9th International Conference on Social Science Methodology; Leicester, United Kingdom; September 11-16, 2016.

*Ou, L., Hunter, M., & Chow, S-M. (May, 2016). What's for dynr: A package for linear and nonlinear dynamic modeling in R. Paper presented at the Modern Modeling Methods (M3) conference, Storrs, Connecticut.

*Ji, L., Chow, S-M., & Jacobson, N. C. (May, 2016). Evaluation of multiple-imputation procedures for handling missing data in in multivariate time series models. Paper presented at the Modern Modeling Methods (M3) conference, Storrs, Connecticut.

*Chen, M., Ji, L., Lu, Z-H., Oravecz, Z., & Chow, S-M. (May, 2016). A Bayesian vector autoregressive (VAR) model with nonignorable missingness in dependent variables and covariates: Development, evaluation, and application to family processes. Poster presented at the Modern Modeling Methods (M3) conference, Storrs, Connecticut.

*Wood, J., Oravecz, Z. Chow, S-M., Conroy, D., Pincus, A., Cole, P., & Ram, N. (May, 2016). Modeling age-related changes in emotion regulation within a hierarchical latent stochastic differential equation framework. Poster presented at the Modern Modeling Methods (M3) conference, Storrs, Connecticut.

*Prince, E. B., Warlaumont, A. S., Oller, D. K., Chow, S-M., Rozga, A., Ciptadi, A., Rehg, J., & Daniel Messinger (May, 2016). Strange Situation Vocalizations Differ Between Secure and Insecure-Resistant Infants. Poster presented at the International Congress on Infant Studies, New Orleans, LA.

*Morales, S., Ram, N., Buss, K.A., Cole, P.M., Helm, J.L., & Chow, S. (May, 2016). Age Differences in the Self-Regulation of Fear: Changes in the Dynamic Coupling of Prepotent and Executive Processes. Poster presented at the International Conference on Infant Studies, New Orleans, LA.

Chow, S.-M. (Oct, 2015). Exploring, fitting, and sensitivity analysis of nonlinear dynamical systems models: Current techniques and unresolved challenges. Cattell Award address presented at the 2015 SMEP conference, Redondo Beach, CA.

Chow, S.-M. (July, 2015). Fitting and evaluating nonlinear dynamical systems models: Current techniques and unresolved challenges. Early Career Award address presented at the 2015 International Meeting of the Psychometric Society, Beijing, China

*Ou, L., & Chow, S.-M. (July, 2015). A nonlinear ordinary differential equation model of emotion. Paper presented at the 2015 Annual Meeting of the Society for Mathematical Psychology, Newport Beach, CA.

Chow, S.-M., *Ou. L, Ciptadi, A., Prince, E., Rehg, J. M., Rozga, A., & Messinger, D. S. (June, 2015). Differential equation modeling approaches to representing sudden shifts in intensive dyadic interaction data. Paper presented at the 2015 Conference of the Society for Ambulatory Assessment, University Park, PA.

*Ji, L., Chow, S-M., Jacobson, N.C., Schermerhorn, A.C. & Cummings, E.M. (June, 2015). *Handling missing data in the modeling of ambulatory assessment data.* Paper presented at the biennial conference of the Society for Ambulatory Assessment, University Park, PA. Selected as a recipient of the Graduate Student Presentation Awards.

* Jacobson, N.C., & Chow, S-M. (June, 2015). *The Differential Time-Varying Effect Model (DTVEM): A tool for diagnosing optimal measurement and modeling intervals in longitudinal data.* Paper presented at the biennial conference of the Society for Ambulatory Assessment, University Park, PA.

*Lu, Z-H., Chow, S-M., & Loken, E. (May, 2015). Bayesian Factor Analysis with Variable Selection Techniques, 2015, 2015 Modern Modeling Methods (M3) conference, Storrs, Connecticut.

Chow, S-M., Witkiewitz, K., Grasman, R., & Maisto, S. (May, 2015). The Cusp Catastrophe Model as Cross-Sectional and Longitudinal Mixture Structural Equation Models. Poster presented at the Annual Convention of the Association for Psychological Science, New York, NY.

*Augustine, M. E., Chow, S-M., & Stifter, C. A. (March, 2015). Modeling infant engagement with novel objects: Maternal and temperament effects. Poster presented at the Biennial Meeting of the Society for Research in Child Development, Philadelphia, PA

*Ou, L., Chow, S-M., Ji, L., & Molenaar, P. C. M. (July, 2014). An examination of initial condition specifications in autoregressive latent trajectory model. Paper presented at the Annual Psychometric Society Conference, Madison, Wisconsin.

Chow, S-M., Witkiewitz, K., Grasman, R., & Maisto, S. (November 2013). The Cusp Catastrophe model as a regime-switching structural equation model. Paper presented at Society for the Study of Human Development Biennial Meeting. Fort Lauderdale, FL.

Chow, S-M., Witkiewitz, K., Grasman, R., & Maisto, S. (October, 2013). Regime-switching structural equation and state-space models. Paper presented at the Annual Meeting of the Society of Multivariate Experimental Psychology, St Petersburg, FL.

Losardo*, D., Ou*, L., & Chow, S-M. (July 2013). An Examination of Initial Condition

Specification in the Structural Equations Modeling Framework. Poster presented at the Annual Psychometric Society Conference, Arnhem, the Netherlands.

Chow, S-M., Witkiewitz, K., Grasman, R., & Maisto, S. (July 2013). The cusp catastrophe model as a regime-switching structural equation model. Paper presented at the Annual Psychometric Society Conference, Arnhem, the Netherlands.

Chow, S-M., Lu, Zhaohua, Sherwood, Andrew, & Zhu, HT (July 2013). Fitting nonlinear differential equation models with random effects using the stochastic approximation expectation maximization algorithm. Paper presented at the fifth Conference of the European Survey Research Association, Ljubljana, Slovenia.

Lu, Z-H., Chow, S-M., Sherwood, A., & Zhu, HT. (July 2012). *Nonlinear stochastic differential equation models for latent variables*. Paper presented at the Annual Psychometric Society Conference, Nebraska, Lincoln.

Chow, S-M., Dolan, C. V., Filteau, G., & McArdle, J. J. (February, 2012). *Longitudinal regime-switching models*. Paper presented at the Society for Research in Child Development 2012 Themed Meeting: Developmental Methodology, Tampa, Florida.

Chow, S-M. (July, 2011). *Examining time-varying coupling effects between positive and negative emotions using a dynamic factor analysis model with time-varying parameters*. Paper presented at the International Society for Research on Emotion (ISRE) annual conference, Kyoto, Japan.

Chow, S-M., Zhu, HT, & Sherwood, A. (July, 2011). *Fitting nonlinear differential equation models with random effects using the stochastic approximation expectation-maximization algorithm*. Paper presented at the Annual Psychometric Society Conference, Hong Kong.

Tuerlinckx, F. & Chow, S-M. (July, 2011). Symposium co-organizer and opening remarks for "*Modeling heterogeneity in dynamical structures and processes*." Presented at the Annual Psychometric Society Conference, Hong Kong.

Chow, S-M. (July, 2011). Discussant for K. Gates (chair), *Time-varying effect model of intensive longitudinal data: An application to smoking cessation behavior*. Paper symposium presented at the Annual Psychometric Society Conference, Hong Kong.

*Losardo, D., Chow, S-M., Panter, A. T., Burkley, M. & Burkley, E. (July, 2010). *Optimal designs for daily diary studies: Do we really need all of those time points?* Poster presented at the Annual Psychometric Society Conference, Athens, GA.

Chow, S.-M., Tang, N., *Yuan, Y., Song, X & Zhu, H. (July, 2009). *Bayesian estimation of semiparametric dynamic latent variable models using the Dirichlet process prior*. Talk presented at the Annual Psychometric Society Conference, Cambridge UK.

Chow, S-M., Allaire, J. C., Hamaker, E. & Marsiske, M. (July, 2008). *Examining individual shifts in learning dynamics in group-based state-space Models*. Talk presented at the Annual Psychometric Society Conference, New Hampshire, MA.

*Yang, M., & Chow, S-M. (July, 2008). *Using State-Space Models with Regime Switching to Represent the Dynamics of Facial EMG Data*. Talk presented at the Annual Psychometric Society Conference, New Hampshire, MA.

*Zu, J., & Chow, S-M. (July, 2008). *Examining Dynamic Factor Models with Time-Varying Parameters*. Talk presented at the Annual Psychometric Society Conference, New Hampshire, MA.

Chow, S.-M., Bauer, C., *Spies, J. R., Li, S.-C., Lindenberger, U. & Baltes, P. B. (Aug, 2006). *Predicting optimal pathways to cognitive aging: Agent-based modeling of selection, optimization, and compensation dynamics*. Talk presented at the Annual convention of the American Psychological Association, New Orleans, LA.

*Zu, J., Chow, S-M., Boker, S-M. (May, 2006). *A mathematical model of phase transitions in human affect*. Poster presented at the Annual Convention of the Midwestern Psychology Association, Chicago, IL.

Ong, A. D., Chow, S. M., Bergeman, C. S., & Fujita, F. (May, 2006). *Positive emotions as a resource for shame-prone individuals.* Paper presented at the Annual Meeting of the Midwestern Psychological Association, Chicago, IL.

Chow, S.-M., *Spies, J. R., Bauer, C., Li, S.-C., Lindenberger, U. & Baltes, P. B. (April 2006). *An agent-based mathematical modeling approach to the theory of selection, optimization and compensation*. Poster presented at the 2006 Cognitive Aging Conference, Atlanta, GA.

Chow, S-M., Ferrer, E. & Nesselroade, J. R. (November, 2005). *Using nonlinear dynamical systems models to represent changes in affective dynamics: A dyadic interaction example*. Paper symposium titled "The dynamics of aging: Tools for the new frontier" convened by Ram, N. & Nesselroade, J. R. at the annual scientific meeting of the Gerontology Society of America, Orlando, FL

Ong, A. D., & Chow, S. M., Fujita, F., & Bergeman, C. S. (May, 2005). *Examining the dynamic linkages between positive affect and negative affect using a coupled oscillators model*. Paper presented at the 17th Annual Convention of the American Psychological Society, Los Angeles, CA.

*Chow, S-M., Boker, S-M., Zu, J. & Fujita, F. (July, 2005). *Representing the circumplex structure of emotions using dynamical systems models*. Poster presented at the XXV European Dynamics Days, Berlin, Germany.

Daniel S. Messinger, Sy-Miin Chow, Seth Koterba, Changbo Hu, J.D. Haltigan, Jeffrey Cohn (July, 2005). *Smile and Emotion Dynamics in Infant Mother Interaction*. Symposium titled "New insights into the expression of positive emotion in infancy and adulthood" convened by Messinger D. & Fogel A. at the annual meeting of the International Society for Research on Emotion, Bari, Italy.

Chow, S-M., Hamaker, E. J. & Dolan, C. (June, 2005). *Representing developmental and psychological processes using structural equation models and state-space models: Recent progress and unresolved issues*. Paper presented at the 70th Psychometric Society Conference, Tilburg, the Netherlands.

*Zu, J., Chow, S-M. & Boker, S. M. (June, 2005). *The Effect of Number of Fourier Series Component on Power and Accuracy to Test Circumplex Structure*.

Paper presented at the North American Association for Computational Social and Organizational Science, Notre Dame, Indiana.

Messinger, D.S., Gaby, J., Haltigan, J. D., Chow, S. M., Koterba, S.Hu, C., Venezia, M., Hamilton, L., Cohn, J. F. (2005, April). *Interactive Influence in Mutual Smiling*. Paper presented at the Society for Research in Child Development. Atlanta, GA.

Chow, S-M. & Nesselroade, J. R. (November, 2004). *Modeling intraindividual variability as a dynamic process*. Paper symposium titled "Methodological approaches to the study of intraindividual variability" convened by Ram, N. & Nesselroade, J. R. at the annual scientific meeting of the Gerontology Society of America, Washington, D.C.

Chow, S-M. & Nesselroade, J. R. (June, 2004). *A Monte Carlo comparison of methods for fitting nonlinear dynamic Models*. Paper presented at the 2004 Psychometric Society Conference, Pacific Grove, CA.

Ram, N., Chow, S-M., Grimm, K. J., Fujita, F. & Nesselroade, J. R. (June, 2004). *Examining the dynamics of pleasant and unpleasant emotions using spectral analysis and the Rating Scale model*. Paper presented at the 2004 Psychometric Society Conference, Pacific Grove, CA.

Kline, T. L., Bowles, R. P., Chow, S-M, Schmidt, K. M. & Berry, J. (April, 2004). *The Metamemory in Adulthood Scale: A rating scale analysis*. Poster presented at the 2004 Cognitive Aging Conference, Atlanta, GA.

Bowles, R. P., Kline, T. L., Chow, S-M., Berry, J., & Schmidt, K. M. (2004, April). *An item factor analysis of the Metamemory in Adulthood (MIA) instrument*. Poster presented at the Cognitive Aging Conference, Atlanta, GA.

Chow, S-M. & Nesselroade, J. R. (April, 2004). *General slowing or decreased inhibition? Mathematical models of age differences in cognitive functioning*. Poster presented at the 2004 Cognitive Aging Conference, Atlanta, GA.

Chow, S-M, Kline, T. L., Bowles, R. P., Berry, J. & Schmidt, K. M. (April, 2004) *Factorial invariance of the Metamemory in Adulthood Questionnaire*. Poster presented at the 2004 Cognitive Aging Conference, Atlanta, GA.

Ram, N., Chow, S. & Fujita, F. (January, 2004). *Dynamical modeling of emotion: stable daily and weekly patterns in seemingly random changes*. Poster presented at the 2004 Society for Personality and Social Psychology Conference, Austin, TX.

Chow, S., Nesselroade, J. R. & Schmidt, K. M. (August, 2002). *Age differences in task-switching patterns*. Poster presented at the American Psychological Association Annual Convention, Chicago, IL.

Chow, S. & Nesselroade, J. R. (August, 2002). *Age differences in transitory cognitive performance*. Poster presented at the Cognitive Science Society Annual Meeting, Fairfax, VA.

Chow, S., Nesselroade, J. R. & Shifren, K. (June, 2002). *Mood fluctuations in individuals with Parkinson's disease*. Paper presented at the Psychometric Society Annual Meeting, Chapel Hill, NC.

Justice, L., Capellini, C., Colton, S., Flanigan, K., Chow, S. (March, 2002). *Emergent literacy in preschool children: Intervention suggestions*. Paper presented at the Speech-Language-Hearing Association of Virginia Annual Conference, Charlottesville, VA.

Chow, S., (April, 2001). *Modeling synthetic work performance from a structural modeling approach*. Paper presented at the 2001 Spring Convention of Virginia Psychological Association, Roanoke, VA.

Chow, S., (June, 2000). *An agent-based model of human synthetic performance.* Student paper presented at the Summer 2000 Complex Systems Summer School, Santa Fe, NM.

Hillary, Frank G., Miin, Sy, Moelter, S., Chute, D. L., (November, 1999). *Predictors of vocational functioning after traumatic brain injury*. Poster presented at the 19th annual meeting of the National Academy of Neuropsychology, San Antonio, TX., [Abstract published in Archives of Clinical Neuropsychology, 14 (8), 792.]

WORKSHOPS/SEMINARS

Chow, S.-M. (March 2023). Exploring Intensive Longitudinal Data in R, Friedrich-Alexander-University Erlangen-Nuremberg

Chow, S.-M. (March 2022). Dynamical Systems Approaches to Intensive Longitudinal Data, Masaryk University, Czech Republic.

Chow, S.-M. (May 2021). Penn State CTSI BERD (Biostatistics, Epidemiology, Research Design) Workshop Series: Dynamical Systems Approaches to Intensive Longitudinal Data). University Park, PA.

Chow, S.-M. (Aug 2019). Dynamic Modeling in R. Penn State R Bootcamp organized by Rick O. Gilmore and Michael Hallquist. University Park, PA.

Chow, S.-M., Molenaar, P. C. M., Hunter, M.D., & Driver, C. (May 2018). "Dynamic Modeling in R." Pre-conference workshop given at the Annual International Meeting of the Psychometric Society, New York, NY.

Chow, S.-M. (May 2017). "Introduction to Dynamical Systems Modeling." Invited talk presented as part of the workshop on "Models and Methods to Study Psychological Well-Being" organized by Zita Oravecz and Joachim Vandekerckhove, American Psychological Science meeting, Boston, MA.

Chow, S-M. (April 2010). *Workshop on Longitudinal Data Analysis*, Nanyang Technological University, Singapore

Chow, S-M. (July 2006). *Introduction to time series and state-space modeling techniques*. Life seminar presented at the Max Planck Institute for Human Development.

Chow, S.-M. & Spies, J. R. (June, 2005). *An agent-based approach to modeling changes in developmental landscape*. Workshop given at the Max Planck Institute for Human Development to members of the Center for Lifespan Psychology and other universities in Berlin.

TEACHING EXPERIENCE

<u>Undergraduate courses</u>

Statistical Principles in Psychological Research (PSYC 210 at UNC, PSYC341 at Notre Dame)
Spring 2006, Fall 2006, Spring 2007, Spring 2008, Fall 2008.

Statistical Principles in Psychological Research, Calculus-Based (PSYC 215)
Fall 2009.

Graduate courses

Advanced Longitudinal Data Analysis (PSYC 859)
Spring 2006, Spring 2009, Spring 2011

Statistical Methods in Psychology I (PSYC 281/830)
Fall 2006, Fall 2007, Fall 2008, Fall 2009, Fall 2010, Fall 2011

Research Methods (HDFS 516/518)
HDFS, PSU: Fall 2012, 2013, 2014 (received departmental letter for excellence in student review ratings in all years that this course was taught)

Dynamical Systems Analysis of Psychological Data
Notre Dame: Spring 2007 (at Notre Dame)
PSU: Spring 2014, 2016; Fall 2021 in hybrid mode. (received departmental letter for excellence in student review ratings in all years that this course was taught in Spring 2014 and 2016), 2023 (1-credit version)
Introduction to Regression Analysis (HDFS 519)
HDFS, PSU: Spring 2017, yearly thereafter

MENTORING AND ADVISING

Mentors on K awards
Methodology mentor on K01
   Gloria Luong (2018-2023)– Colorado State University
Primary mentor on the Penn State Clinical and Translational Science Institute (CTSI)-KL2 program Steffany Fredman (2018 – 2020)
Emily Hohman (methodology mentor on CTSI-KL2 award; Primary Mentor: Orfeu Buxton), Department of Nutritional Sciences, Center for Childhood Obesity Research, (2022 – present)
Lauren Forrest (methodology mentor on CTSI-KL2 award; Primary Mentor: Emily Ansell), Department of Psychiatry and Behavioral Health, Penn State College of Medicine (2022 – present)

Postdoctoral fellows
Zhaohua Lu (2014 – 2016)– Assist. member, Biostatistics Department at St Jude Children's Research Hospital
Dongjun Yu (8/2017 – 3/31/2019) – Independent Statistical Consultant

Graduate students

Primary advisor

- Hyungeun Oh (2022 -) Co-mentored with Michael Hunter; Co-Chair Qualifying Exam Committee (2024)
- Xiaoyue Xiong (2021-) Chair, Master thesis committee
- Young Won Cho (2020 -) Chair, Comps Committee (2023)
- Meng Chen (2014 –2020) Chair, Candidacy (2017), Master and Comps committees (2019), Dissertation committee (2020). Research Assist Prof, University of Oklahoma
- Jonathan Park (2018 – present) Chair, Qualifying Exam (2020); PhD dissertation Co-Chair with Peter Molenaar (2023-2024).
- Yanling Li (2018 – 2023) Co-Chair, Dissertation committee (2023); Co-Mentor with Zita Oravecz. Research Assistant Prof PSU
- Jungmin Lee (2016 – 2023) Co-Chair, candidacy exam committee (2019). Dissertation Chair (2022-2023). Independent Statistical Consultant
- Linying Ji (2013 – 2019) Chair, Master, Comps (2018), and Dissertation committees (2018-2019). Assist Prof Monta State U.
- Lu Ou (2012 – 2018) Chair, Master's, Comps (2015) and Dissertation committees. Research Scientist at *Uber*.
- R. Shane Hutton (2009 – 2012) Chair, Master committee. Lecturer at Vanderbilt University
- Diane Losardo (2008 – 2012) Chair, dissertation committee. Senior Data Scientist, GoodRx.
- Guillaume Filteau (2008 – 2010) Now graduate student in the department of Biostatistics, UNC
- Stacey Tiberio (2006 – 2007) Chair, dissertation committee at Notre Dame; co-supervise with Steve Boker and Scott Maxwell). Research Scientist at the Oregon Social Learning Center
- Ji-Yun Zu (2004 – 2007): Master Thesis Chair at Notre Dame. Now Psychometrician at Educational Testing Services (ETS).
- Manshu Yang (2005 – 2007): Master Thesis Chair at Notre Dame. Assistant Professor, University of Rhodes Island

Quantitative minor advisor/methodology mentor

- Bethany Kok (2009 – 2012) Doctoral candidate in Social Psychology, UNC
- Joe Simons (2011 – 2013). Doctoral candidate in Social Psychology, UNC
- Vanessa Volpe (2012 – 2012) Doctoral student in Developmental Psychology, UNC
- Amanda Griffin (2015 – 2018), PAMT fellow, Penn State
- Emily Soriano (2018 – 2019) F31, NIH
- Anneke Olson (2020 – present), Child Maltreatment T32 fellow, Penn State

Doctoral Dissertation Committee member

R.J. Wirth (Department of Psychology, UNC) 2010
Joe Simons (Department of Psychology, UNC) 2012
Bethany Kok (Department of Psychology, UNC) 2012
Zhaowei Hua (Department of Biostatistics, UNC) 2012

Yao Zheng (HDFS, PSU) 2013
Lauren Philbrook (HDFS, PSU) 2015
Nick Jacobson (Psychology, PSU) 2016
Hae Young Rhee (HDFS, PSU) 2017
Mina Shimizu (HDFS, PSU), 2017
Jason Bendezú (Psychology PSU), 2017
Hui-Ju Hung (Computer Science, PSU), 2018
Chang Liu (Psychology, PSU), 2019
Annie Yunying Le (HDFS, PSU), 2019
Shue Huang (Nutritional Sciences, PSU), 2019
Mimi Brinberg (HDFS, PSU), 2020
Daniel Petrie (HDFS, PSU), 2023
Haruka Notsu (HDFS, PSU), 2023
John William Long (HDFS, Nutrition), 2023
Wei Zhang (Department of Psychology, Notre Dame)
Kathleen Ashenfelter (Notre Dame)
Mignon Montpetit (Notre Dame)

External dissertation committee member, Laura Bringmann, University of Leuven, 2015
(Katholieke Universiteit Leuven)

Doctoral Comprehensive Exams:
- Brandon McDaniel (HDFS, PSU) 2013
- Lauren Philbrook (HDFS, PSU) 2013
- Katharine Bamberger (HDFS, PSU) 2014
- Mina Shimizu (HDFS, PSU) 2015
- Tracy Cloutier (Psychology, PSU) 2016
- Nick Jacobson (Psychology, PSU) 2016
- Jason Bendezú (Psychology PSU), 2017
- Yunying (Annie) Le (HDFS, PSU) 2017
- Chang Liu (Psychology, PSU), 2017
- Mimi Brinberg (HDFS, PSU), 2019
- Rachel Croninger (Educational Psychology, Counseling, and Special Education), 2019
- Jungmin Lee (HDFS, PSU), 2020
- Jonathan Park (HDFS, PSU), 2021
- Yanling Li, (HDFS, PSU), 2021
- Ankur Kumar (Industrial & Manufacturing Engineering)

Doctoral Candidacy Exam Committee:
- Cindy Willner (HDFS, PSU) 2013
- Lauren Bangerter (HDFS, PSU) 2013
- Rachel Abenavoli (HDFS, PSU) 2013
- Kameron Moding (HDFS PSU) 2013
- Mairin Augustine (HDFS PSU) 2014
- Mengya Xia (HDFS PSU), 2014

- Peter Kim (HDFS PSU), 2015
- Jason Bendezú (Psychology PSU), 2015
- Ni Jian (HDFS, PSU), 2016
- Mimi Brinberg (HDFS, PSU), 2017
- Anna Hochgraf (HDFS, PSU), 2018
- Xutong Zhang (HDFS, PSU), 2018
- Jacoba Rock (HDFS, PSU), 2018
- Agus Surachman (HDFS, PSU), 2018
- Nathan Chiang (HDFS, PSU), 2021

Master's thesis:
- Moé Kishida (Kinesiology, PSU) 2013
- Chelsea Burfeind (Department of Psychology, UNC)
- Zane Blanton (Department of Psychology, UNC)
- Naomi Ekas (Department of Psychology, Notre Dame)
- Nick Jacobson (Psychology, PSU) 2015

PROFESSIONAL MEMBERSHIPS

Psychometric Society (2002 –)
Association for Psychological Science (2012 –)
Society of Multivariate Experimental Psychology (2012 –)
Gerontology society of America (2004 –)