JEN-MEI CHANG | Curriculum Vitae

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○ GitHub   ●   in LinkedIn   ●   b Blog

RESEARCH INTEREST

Computational and geometric methods for analyzing large data sets. Machine learning. Scholarship of teaching and learning. Educational data mining. Learning analytic.

EDUCATION

COLORADO STATE UNIVERSITY **2004 - 2008**
Ph.D., Mathematics Fort Collins, CO
Thesis Title: Classification on the Grassmannians: Theory and Applications

COLORADO STATE UNIVERSITY **2002 - 2004**
M.S., Mathematics Fort Collins, CO
Thesis Title: Applications of Classification With Tangent Distance to Face Recognition Under Varying Illumination and Pose Conditions

CALIFORNIA STATE UNIVERSITY, SACRAMENTO **1998 - 2002**
B.A., Mathematics; magna cum laude Fort Collins, CO

POSITION

ADVISORY BOARD MEMBER **2023 - Present**
Expanding Equity and Access in Discrete Mathematics Project

COORDINATOR **2018 - Present**
MATH 104: The Power of Mathematics CSU, Long Beach

PROFESSOR **2019 - Present**
Department of Mathematics and Statistics CSU, Long Beach

COORDINATOR **2018 - 2022**
Early Start Mathematics Program CSU, Long Beach

ASSOCIATE PROFESSOR **2014 - 2019**
Department of Mathematics and Statistics CSU, Long Beach

ASSISTANT PROFESSOR **2008 - 2014**
Department of Mathematics and Statistics CSU, Long Beach

MEMBERSHIP

BEACH MENTOR - ADVANCING INCLUSIVE MENTORING **2022 - Present**
 CSU, Long Beach

NATIONAL ACADEMY OF INVENTORS **2017 - Present**
 CSU, Long Beach

HONOR & AWARD

DISTINGUISHED FACULTY TEACHING AWARD **2014**

Academic Affairs   CSU, Long Beach

FACULTY AWARD FOR EXCELLENCE (PRETTY DARN GOOD PROFESSOR)   2013
College of Natural Sciences and Mathematics   CSU, Long Beach

EXXONMOBIL FOUNDATION PROJECT NEXT FELLOWSHIP   2008-2009
Mathematics Association of America

Teaching experience

PROFESSOR   2008 - Present
Courses Taught   CSU, Long Beach
MATH 94: Fundamentals for Quantative Reasoning, MATH 103: Mathematical Ideas, MATH 104: The Power of Mathematics, MATH 113: Pre-Calculus Algebra, MATH 115: Business Calculus, MATH 119A: Survey of Calculus I, NSCI 190A: Experience Success Program, MATH 224: Calculus III, MATH 233: Fundamental Concepts in Advanced Mathematics, MATH 247: Introduction to Linear Algebra, MATH 323: Introduction to Numerical Analysis, MATH 370A: Applied Mathematics I, MTED 371: Mathematical Modeling for Teachers, MATH 485: Mathematical Optimization, MATH 496: Special Problems, MATH 498H: Senior Thesis, MATH 479/579: Mathematical Modeling, MATH 521: Matrix Method for Data Analysis and Pattern Recognition, MATH 573: Advanced Scientific Computing, MATH 578: Numerical Linear Algebra, MATH 697: Directed Study, MATH 698: Thesis or Project

Professional development

FACULTY FORMATIVE FEEDBACK PROJECT (FFFP)   2021 - Present
Faculty Center, Academic Affairs   CSU, Long Beach

AI ``NO PREP'' BOOK CLUB   2024
Academic Technology Services   CSU, Long Beach

WELLNESS AMBASSADOR TRAINING   2023
Basic Needs and CAPS   CSU, Long Beach

CANVAS ESSENTIALS   2022
Academic Technology Services   CSU, Long Beach

THE BEACH MENTOR PROGRAM, ADVANCING INCLUSIVE MENTORING   2022
BUILD   CSU, Long Beach

HYFLEX AND HYBRID INSTRUCTIONAL TECHNIQUES PROGRAM   2021
Academic Technology Services   CSU, Long Beach

DIVERSITY, EQUITY & INCLUSION IN THE CLASSROOM WORKSHOP SERIES   2021
                                                                          CSU, Long Beach

ADVANCED QLT COURSE IN TEACHING ONLINE   2021
Chancellor's Office   CSU

TRANSFORM YOUR TEACHING WITH PERUSALL WITH ERIC MAZUR ONLINE WORKSHOP 2021
                                                                          Perusall

INTRODUCTION TO TEACHING ONLINE USING QLT   2020
Onine Course Services   CSU

SUMMER RETREAT: BUILDING CAPACITY TO CREATE EQUITABLE LEARNING ENVIRONMENTS 2019
Chancellor's Office   CSU

YEAR TWO PLANNING: ASSESSING PROGRESS, CELEBRATING ACHIEVEMENTS,AND LOOKING FORWARD 2019
Chancellor's Office   CSU

DATA FELLOWS FOR STUDENT SUCCESS
Academic Planning

2017 - 2018
CSU, Long Beach

BRIDGING THE GAP (BTG) DUAL ENROLLMENT FACULTY PROFESSIONAL DEVELOPMENT WORKSHOP

2018
CSU, Long Beach

PUBLIC KNOWLEDGE MEDIA TRAINING

2017
CSU, Long Beach

FACULTY ETHICS ROUNDTABLE
Ukleja Center for Ethical Leadership

2016
CSU, Long Beach

SAFE ZONE ALLY TRAINING

2016
CSU, Long Beach

WORKSHOP ON CREATING AND FOSTERING A GROWTH-MINDED CLASSROOM
College of Natural Sciences and Mathematics

2016
CSU, Long Beach

PROJECT KALEIDOSCOPE SUMMER LEADERSHIP INSTITUTE FOR STEM FACULTY

2012
AAC&U

FACULTY LEARNING COMMUNITY AT COLLEGE OF NATURAL SCIENCES AND MATHEMATICS
College of Natural Sciences and Mathematics

2011 - 2013
CSU, Long Beach

PROJECT NEXT

2008 - 2009
Mathematical Association of America

LESSON STUDY

2003 - 2005
Colorado State University

Peer-reviewed publication

[*]**AUTHOR LIST IS ORDERED ALPHABETICALLY**
[†]**AUTHOR LIST IS ORDERED BY CONTRIBUTION**

1. (Journal[†]) Y. Zhao G. Galvez, M. Giang, J.-M. Chang, "Examining skills, confidence and overall success among participants of a scholarship program aimed at increasing recruitment and preparation in the Science, Technology, Engineering, and Mathematics (STEM) fields." In preparation, 2024.

2. (Journal*) J.-M. Chang, L. Henriques, K. Knight-Teague, K. Stout, "Scaffolded formative feedback and consultation to enhance teaching and learning," in preparation for Journal of Faculty Development, 2024.

3. (Journal[†]) J.-M. Chang, A. Kim, R. Hernandez-Pacheco, "Applying k-medoids clustering to understand STEM switching among biology students," submitted, 2024.

4. (Journal[†]) J. Chesler, J.-M. Chang, "A course in mathematical modeling for pre-service teachers," Issues in the Undergraduate Mathematics Preparation of School Teachers: The Journal (IUMPST: The Journal), Volume 4 (Curriculum), ISSN 2165-7874, December 2019.

5. (Journal[†]) X. Jiang, J.-M. Chang, H. Sun, "Infra-marginal model analysis of the evolution of agricultural division of labor," Mathematics: Special Issue Mathematics and Engineering (Impact Factor 1.105), Volume 7(12), Issue 1152, pg. 1-13, December, 2019.

6. (Proceedings*) C. Anghel, K. Archer, J.-M. Chang, A. Cochran, A. Radulescu, C.M. Salafia, R. Turner, K. Yacoubou Djuma, L. Zhong, "Placental vessel extraction with shearlets, laplacian eigenmaps, and a conditional generative adversarial network," in: Radunskaya A., Segal R., Shtylla B. (eds) Understanding Complex Biological Systems with Mathematics. Association for Women in Mathematics Series, Volume 14, Springer, pg. 171–196, 2018.

7. (Proceedings*) C. Anghel, K. Archer, J.-M. Chang, A. Cochran, A. Radulescu, C.M. Salafia, R. Turner, K. Yacoubou Djuma, L. Zhong, "Simulations of the vascular network growth process for studying placenta structure and function associated with autism," in: Radunskaya A., Segal R., Shtylla B. (eds) Understanding Complex Biological Systems with Mathematics. Association for Women in Mathematics Series, Volume 14, Springer, pg. 145–169, 2018.

8. (Journal†) E. Farnell, S. Farnell, J.-M. Chang, M. Hoffman, R. Belton, K. Keaty, S. Lederman C. Salafia, "A shape-context model for matching placental chorionic surface vascular networks," Image Analysis and Stenography (Impact Factor 1.216), Volume 37, Number 1, pg. 55–62, 2018.

9. (Proceeding†) J. Chesler, J.-M. Chang, "A course in mathematical modeling for pre-service teachers: Designs and challenges," 21st Conference on Research in Undergraduate Mathematics Education (RUME), February 2018.

10. (Journal†) J.-M. Chang, H. Zeng, R. Han, Y.-M. Chang, R. Shah, C. Salafia, C. Newschaffer, R. K. Miller, P. J. Katzman, J. Moye, M. Fallin, C. K. Walker, L. Croen, "Autism risk classification using placental chorionic surface vascular network features," BMC Medical Informatics and Decision Making (Impact Factor 1.643; 5-Year Impact Factor 2.365), Volume 17, Issue 162, pg. 1–13, December 2017.

11. (Journal†) J. Murphy, J.-M. Chang, K. Suaray, "Student performance and attitudes in a collaborative and flipped linear algebra course," International Journal of Mathematical Education in Science and Technology (SJR 0.428), Volume 47, Issue 5, pg. 653–673, 2016.

12. (Journal†) J.-M. Chang, P. Buonora, L. Stevens, C. Kwon, "Strategies to recruit and retain students in physical science and mathematics on a diverse college campus," Journal of College Science Teaching (RG Journal Impact 0.81), Volume 45, Number 3, pg. 14–22, 2016.

13. (Proceeding†) G. Touchon, J. Chanussol, J. Gilles, M. Dalla Mura, J.-M. Chang, A. Bertozzi, "Gas plumes detection and tracking in hyperspectral video sequences using binary partition trees," IEEE Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS), Lausanne, Switzerland, June 2014.

14. (Proceeding†) J. Sunu, J.-M. Chang, A. Bertozzi, "Simultaneous spectral analysis of multiple video sequence data for LWIR gas plumes," Proceedings of SPIE: Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XX, Volume 9088, June 2014.

15. (Journal†) T. Meyer, D. Ziegler, C. Brune, A. Chen, R. Farnham, N. Huynh, J.-M. Chang, A. Bertozzi, P. Ashby, "Height drift correction in non-raster atomic force microscopy," Ultramicroscopy (Impact Factor 2.843; 5-Year Impact Factor: 2.741; RG Journal Impact 2.51), Volume 137, pg. 48–54, November 2013.

16. (Proceeding†) J.-M. Chang, N. Huynh, M. Vazquez, C. Salafia, "Vessel enhancement with multiscale and curvilinear filter matching for placenta images," Proceedings of the International Conference on Systems, Signals and Image Processing, Bucharest, Romania, pg. 125–128, July 2013.

17. (Proceeding†) T. Gerhart, J. Sunu, L. Lieu, E. Merkurjev, J.-M. Chang, J. Gilles, A. Bertozzi, "Detection and tracking of gas plumes in LWIR hyperspectral video sequence data," Proceedings of SPIE: Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIX, Volume 8743, May 2013.

18. (Journal†) J.-M. Chang, A. Mulgrew, Carolyn Salafia, "Characterizing placental surface shape with a high-dimensional shape descriptor," Applied Mathematics (Impact Factor 0.65), Volume 3, Number 9, pg. 954–968, 2012.

19. (Journal†) J.-M. Chang, M. Kirby, C. Peterson, "Feature patch illumination spaces and Karcher compression for face recognition via Grassmannians," Advances in Pure Mathematics (Impact Factor 0.55), Volume 2, Number 4, pg. 226–242, 2012.

20. (Proceeding†) J.-M. Chang, J. Pacheco, "Classifying handwritten digits on the Grassmann manifold," Proceedings of The International Conference on Image Processing, Computer Vision, & Pattern Recognition, Volume 1, pg. 36–41, 2011.

21. (Journal) J.-M. Chang, "A practical approach to inquiry-based learning in linear algebra," International Journal of Mathematical Education in Science and Technology (SJR 0.428), Volume 42, Number 2, pg. 245–259, 2010.

22. (Journal) J.-M. Chang, "Getting students excited about learning mathematics," The Journal of the Central California Mathematics Project, Volume 3, pg. 6–13, 2010.

23. (Journal†) JR Beveridge, B. Draper, J.-M. Chang, M. Kirby, H. Kley, C. Peterson, "Principal angles separate subject illumination spaces in YDB and CMU-PIE," IEEE Transactions on Pattern Analysis and Machine Intelligence (Impact Factor 8.329), Volume 31, Issue 2, pg. 351–356, 2009.

24. (Proceeding†) J.-M. Chang, M. Kirby, "Face recognition under varying viewing conditions with subspace distance," Proceedings of the 2009 Int'l Conf. on Artificial Intelligence and Pattern Recognition (AIPR-09), pg. 16–23, 2009.

25. (Proceeding†) J.-M. Chang, M. Kirby, H. Kley, C. Peterson, B. Draper, J.R. Beveridge, "Recognition of digital images of the human face at ultra low resolution via illumination spaces," Proceedings of the 8th Asian Conference on Computer Vision, part II, LNCS Volume 4844, pg. 733–743, 2007.

26. (Proceeding†) J.-M. Chang, M. Kirby, C. Peterson, "Set-to-set face recognition under variations of pose and illumination," Proceedings of 2007 Biometrics Symposium at The Biometrics Consortium Conference, pg. 1–6, 2007.

27. (Proceeding†) J.-M. Chang, M. Kirby, H. Kley, J.R. Beveridge, B. Draper, C. Peterson, "Examples of set-to-set image classification," Proceedings of the Seventh Int'l Conf. on Mathematics in Signal Processing, The Royal Agricultural College, Cirencester, Institute for Mathematics and its Applications, pg. 102–105, 2006.

28. (Proceeding†) J.-M. Chang, J.R. Beveridge, B. Draper, M. Kirby, H. Kley, C. Peterson, "Illumination face spaces are idiosyncratic," Proceedings of the International Conference on Image Processing, Computer Vision, & Pattern Recognition, Volume 2, pg. 390–396, 2006.

PUBLISHED ABSTRACT

1. R. Hernandez-Pacheco, A. Kim, J.-M. Chang, "Engaging CSU students in quantitative primate research through meaningful experiences"Ecological Society of America Annual Meetings, Long Beach, CA, August, 2024.

2. D. Satterfield, J.-M. Chang, "Industry and academia collaborative learning: The CSULB and ISSIP AI Collab pilot program," 15th International Conference on Applied Human Factors and Ergonomics and the Affiliated Conferences (AHFE), Nice, France, July, 2024.

3. M. Giang, G. Galvez, J.-M. Chang, "Advancing Diverse STEM Scholars Through Mentorship Excellence," The 13th Annual STEM/STEAM and Education Conference, Honolulu, HI, June, 2024.

4. G. Galvez, J.-M. Chang, "Beyond the METRIC: Promoting success and persistence in STEM through mentorship excellence," Hawaii International Conference on Education, January, 2023.

5. A. Kim, R. Hernandez-Pacheco, J.-M. Chang, D. Underwood, "Gender differences in math anxiety and motivation across biology students," Network Gender & STEM Conference, July, 2022.

6. G. Galvez, M. Berg, E. Stoll, M. Giang, J.-M. Chang, "Examining the development of science identity and sense of belonging among underrepresented minority STEM students participating in the METRIC program," Hawaii International Conference of Education, January, 2022.

7. C. Anghel, K. Archer, J.-M. Chang, A. Cochran, A. Radulescu, C.M. Salafia, R. Turner, K. Yacoubou Djuma, L. Zhong, "Simulations of the placental vascular network growth process for studying placental structure and function," Reproductive Sciences, March 2018.

8. D. Gonzalez, J.-M. Chang, "Can decision aid increase college student success?" AMS Special Session on Research in Mathematics by Early Career Graduate Students, Joint Mathematics Meetings, San Diego, CA, January 2018.

9. J.-M. Chang, J. Chesler, "Developing a course in mathematical modeling for pre-service secondary teachers," MAA Contributed Paper Session on the Scholarship of Teaching and Learning in Collegiate Mathematics, Joint Mathematics Meetings, San Diego, CA, January 2018.

10. C. Anghel, K. Yacoubou Djima, J.-M. Chang, "Using a conditional adversarial network for placental blood vessel segmentation," 12th Women in Machine Learning Workshop (WiML 2017), Long Beach, California, December, 2017.

11. K. Yacoubou Djima, C. Salafia, R.K. Miller, R. Wood, P. Katzman, C. Stodgell, J.-M. Chang, "Enhancing placental chorionic surface vasculature from barium-perfused images with directional and multiscale methods," Placenta, Volume 57, pg. 292–293, September 2017.

12. J.-M. Chang, Y.-M. Chang, R. Han, Z. Hui, R. Shah, C. Newschaffer, R. Miller, P. Katzman, J. Moye, C. Salafia, "Whole placental chorionic surface vessel feature analysis with Boruta method, and autism risk," Placenta, Volume 45, pg. 75, September 2016.

13. R. Shah, T. Girardi, J.-M. Chang, J. Straughen, C. Newschaffer, D. Misra, P. Katzman, R. Miller, J. Moye, C. Salafia, "A priori specified relationships among arterial chorionic surface vessel network (PCSVN) and autism risk," Placenta, Volume 45, pg. 76, September 2016.

14. C. Salafia, R. Shah, G. Merz, K. Keaty, L. Conrad, A. Garcia, D. Misra, J.-M. Chang, "Validation of tracing protocol and automated feature extraction of placental chorionic surface vessel networks," Reproductive Sciences, Volume 22, pg. 287A, March 2015.

15. J. Murphy, J.-M. Chang, "Experience a flipped learning outcome through a flipped learning in an introductory linear algebra class," MAA Contributed Paper Session on Using Flipped Pedagogy to Engage Students in Learning Mathematics, Joint Mathematics Meetings, San Antonio, TX, January 2015.

16. N. Huynh, J.-M. Chang, P. Katzmann, R. Miller, J. Moye, C. Salafia, "Assessing the usability of digital images of human placenta with multi-scale filtering methods," Placenta, Volume 35, Number 9, pg. A56, 2014.

17. D. Ziegler, A. Nievergelt, A. Chen, T. Meyer, J.-M. Chang, D. Argyris, A. Phan, A. Striolo, A. Bertozzi, P. Ashby, "Scuba Probes and in-situ mapping of interfacial solvent structure using force spectroscopy," Abstracts of papers of the American Chemical Society, March 16, 2014.

18. J.-M. Chang, N. Huynh, M. Vazquez, C. Salafia, "Vessel enhancement with multiscale and curvilinear filter matching for placenta images," Placenta, Volume 34, Number 9, pg. A73, 2013.

19. P Ashby, D. Ziegler, A. Frank, S. Frank, A. Chen, T. Meyer, R. Farnham, N. Huynh, I. Rangelow, J.-M. Chang, A. Bertozzi, "Encased cantilevers and alternative scan algorithms for ultra-gentle high speed atomic force microscopy," Biophysical Journal, Volume 102, Issue 3, pg. 579a, January 2012.

20. D. Ziegler, B. Sanii, A. Frank, S. Frank, A. Chen, T. Meyer, R. Franham, N. Huynh, J. DeYoreo, I. Rangelow, J.-M. Chang, A. Bertozzi, P. Ashby, "Toward capturing soft molecular material dynamics," Biomolecular Materials Principal Investigators' Meeting, Annapolis, MD, October 2011.

21. J.-M. Chang, "Classification on the Grassmannians: theory and applications," Special Session on Metric and Riemannian Methods in Shape Analysis, AMS Fall Western Section Meeting, University of California, Los Angeles, CA, October 2010.

22. J.-M. Chang, X. Li, "Applying image processing techniques to promote conceptual understanding in linear algebra classes," MAA Special Session on Innovative and Effective Ways to Teach Linear Algebra, Joint Mathematics Meetings, San Francisco, CA, January 2010.

BOOK & BOOK CHAPTER & PROFESSIONAL ARTICLE

1. J.-M. Chang, J. Chesler, "The Power of Mathematics," 3rd Edition, In preparation.

2. J.-M. Chang, G. Galvez, "Scholarship and mentoring: the key to recruiting minority students to STEM," Research Features, ISSN 2399-1942, Issue 149, pg. 58–61, September 29, 2023. Doi: 10.26904/RF-149-5160530885.

3. J.-M. Chang, J. Chesler, "The Power of Mathematics Workbook with Notes," 2nd Edition, published by Kendall Hunt, August 2020. (ISBN: 978-1-7924-3882-0)

4. J.-M. Chang, J. Chesler, "The Power of Mathematics Workbook with Notes," 1st Edition, published by Kendall Hunt, August 2019. (ISBN: 978-1-5249-9489-1)

5. T. Gerhart, J.-M. Chang, "Applications of low rank and sparse matrix decompositions in hyperspectral video processing", Handbook on Robust Decomposition in Low Rank and Sparse Matrices and its Applications in Image and Video Processing, CRC Press, Taylor and Francis Group, April 2016. (ISBN:9781498724623)

6. J.-M. Chang, "Careers," Encyclopedia of Mathematics and Society, Salem Press, 2011.

PATENT & TECHNICAL REPORT

1. (patent) M. Kirby, J.R. Beveridge, J.-M. Chang, B. Draper, H. Kley, C. Peterson, "Unknown pattern set recognition." Patent No.: US 8,116,566 B2. Date of patent: February 14, 2012.

2. T. Gerhart, J. Sunu, L. Lieu, E. Merkurjev, J.-M. Chang, J. Gilles, A. Bertozzi, "Chemical plume detection for hyperspectral imaging," UCLA Applied Math REU, Summer 2012.

3. T. Meyer, R. Farnham, N. Huynh, A. Chen, J.-M. Chang, A. Bertozzi, "Fast atomic force microscopy imaging using self-intersecting scans and inpainting," UCLA Applied Math REU, Summer 2011.

4. B. Jones, A. Adams, A. Nguyen, J.-M. Chang, L. Vese, "Placental imaging classification: at risk detector (PICARD)," UCLA Applied Math REU, Summer 2010.

5. C. Rangel-Escareno, J.-M. Chang, M. Vu, Q. Wu, H. Wadhar, "A two-based encoded DNA sequence alignment problem in computational biology," Claremont Math-in-Industry Workshop, Summer 2009.

6. J.-M Chang, M. Kirby, L. Krakow, J. Ladd, E. Murphy, "Classification of images with tangent distance," Colorado State University Industrial Mathematics Seminar, Spring 2004.

FUNDED SUPPORT

1. ($1,412,057) July 1, 2024 – June 30, 2029, Co-PI, "Developing International STEM Faculty Coconspirators for Racial Equity in STEM," NSF Racial Equity in STEM Education (EDU Racial Equity), submitted on December 5, 2023.

2. ($2,495,087) January 1, 2024 – December 31, 2030, PI, "S-STEM: Mentored Excellence Toward Research and Industry Careers 2 (METRIC 2)," NSF Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM), Award No. NSF DUE-#2322416.

3. (13 WTU) Fall 2022 - Spring 2024, Faculty Formative Feedback Project (FFFP) as Project Leader, Faculty Development Center, California State University, Long Beach.

4. Spring 2023, Sabbatical Leave, "The Power of Mathematics Book Project"

5. (9 WTU) Spring 2021 - Spring 2022, Faculty Formative Feedback Project (FFFP) as a Participant and a Partner, Faculty Affairs, California State University, Long Beach.

6. ($200,000) June 2020 - June 2023, Co-PI, "Identify and Support Diverse Pathways to Timely Graduation in CNSM," Provost's Grant on Challenges to Students' Timely Progress to Graduation.

7. (3 WTU) Fall 2020, CSULB RSCA Assigned Time Award, "Predicting student success in some GE B4 classes at CSULB."

8. ($998,413) June 1, 2019 – May 30, 2024, PI, "Mentored Excellence Toward Research and Industry Careers," NSF Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM), Award No. NSF DUE-1833753.

9. (3 WTU) Spring 2019, CSULB RSCA Assigned Time Award, "Automated extraction of placental chorionic surface vascular networks."

10. (3 WTU/Semester) August 2017 - August 2018, "EO 1110 Redesign," Academic Affairs, California State University, Long Beach.

11. ($39,950) June 2017 - August 2018, "Re-imagining First-Year Mathematics Experience," Academic Affairs: HVDI 2025 Taskforces and Committees, California State University, Long Beach.

12. ($4,000) Summer 2017, Project HOGAR 2017-18 faculty grants programs - Summer Faculty Grant, "Providing Academic Services for Students (PASS)," CSULB.

13. (3 WTU) Spring 2017, CSULB RSCA Assigned Time Award, "Establishing the similarity between paint-injected and un-injected placental chorionic surface vascular networks."

14. Spring 2016, Sabbatical Leave, "Automated Placental Vascular Analysis."

15. (3 WTU) Spring 2015, Proven Course Redesign with Technology Program, CSU Chancellor's Office.

16. (3 WTU) Spring 2014, Proven Course Redesign with Technology Program, CSU Chancellor's Office.

17. ($5,000) Summer 2013, "A flipped experience for learning linear algebra (FELLA)," 2013 Enhancing Educational Effectiveness Through Technology Awards Program: Flipping the Classroom, CSULB.

18. ($10,000) Summer 2013, Research Project Mentor, "California research training program in computational and applied mathematics," Award No. NSF DMS-1045536. Lead PI: Andrea Bertozzi at UCLA. $388,565.

19. (1.5 mo summer salary & 3 WTU), Spring 2013 - Fall 2013, Co-PI, "Hybrid model (second phase)," Next Generation Learning Challenges funded by Bill and Melinda Gates Foundation. Other Co-PI: Florence Newberger, Department of Mathematics and Statistics.

20. (3 WTU) Spring 2013, CSULB RSCA Assigned Time Award, "Automated vasculature extraction of small veins on placental surfaces."

21. ($10,000) Summer 2012, Research Project Mentor, "California research training program in computational and applied mathematics," Award No. NSF DMS-1045536. Lead PI: Andrea Bertozzi at UCLA. $388,565.

22. (3 WTU) Fall 2011, CSULB Department of Mathematics and Statistics Research Assigned Time Award, "Mathematical features of placental surfaces and its implications to maternal and fetal vascular pathology."

23. ($10,000) Summer 2011, Research Project Mentor, "California research training program in computational and applied mathematics," Award No. NSF DMS-1045536. Lead PI: Andrea Bertozzi at UCLA. $388,565.

24. ($10,000) Summer 2010, Research Project Mentor, "UCLA applied mathematics summer REU," Award No. NSF DMS-0601395. Lead PI: Andrea Bertozzi at UCLA.

25. (.25 mo/year) June 2010 – May 2014, Co-PI, "Ensuring student success in physical science and mathematics," NSF Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM), Award No. DUE-0966039. Lead PI: Chuhee Kwon at CSULB. $593,450.

26. (200 hours) Spring 2010, Mathematics Curriculum Specialist, "Upward bound math & science (UBMS) program at CSULB", U.S. Department of Education. Lead PI: Howard Wray.

27. ($1,500) Summer 2009, Travel Grant, Association for Women in Mathematics (AWM).

28. ($4650) June 2009, CSULB RSCA Summer Stipend Award, "Detection of false positives via Grassmann methods."

29. ($35,000) Fall 2008 – Fall 2009, CSULB College of Natural Sciences and Mathematics Start-up Fund.

INVITED TALK

1. "How CSULB Eliminated Mathematics Remediation," San Diego State University, December 13, 2019.

2. "How CSULB Eliminated Mathematics Remediation," Long Beach City College, November 20, 2019.

3. "College Readiness: Mathematics" CSULB Counselors' Conference on Preparation, Admission, Application & Matriculation, CSULB, October 25, 2019.

4. "Designing a curriculum that meets students where they are at," ATS Beach 2030 Guest Speaker Series - Designing for Student Success: Adaptive/Active Learning, CSULB, October 25, 2019.

5. "GE QR/Mathematics (B4) at CSULB," an event hosted by the Center for the Advancement of Instruction in Quantitative Reasoning & CSULB Early Assessment Program Office, May 2019.

6. "Mathematics Placement at CSULB," First-Term Reflections: Restructuring First-Year Writing, Mathematics and Quantitative Reasoning, CSU Chancellor's Office, February 2019.

7. "Early Start Mathematics - Designing an accelerated path to close achievement gaps with ALEKS PPL," ALEKS webinar on Paving the Path to Graduation: Strategies for Placement, Prep and Learning, October 26, 2018.

8. "Early Start Mathematics at CSULB," McGraw-Hill Education Math Event, ALEKS Headquarters, Irvine, April 5, 2018.

9. "Success of CSULB Students in Introductory Mathematics and Statistics Courses," Open Forum on Student Success, Long Beach, CA, March 21, 2018.

10. "Linking placenta with health conditions: focusing on explaining autism spectrum disorder with placenta," Mathematical Biosciences Institute Emphasis Workshop: Women Advancing Mathematical Biology, Columbus, OH, April 24 – 28, 2017.

11. "Discriminating placentas of increased risk for autism with chorionic surface vascular network features," AWM Research Symposium - Special Session on Shape Modeling and Applications (WiSh), University of California State University, Los Angeles, Los Angeles, CA, April 2017.

12. "Creating and fostering a growth-minded classroom," China Medical University, Taichung, Taiwan, January 2017.

13. "Creating and fostering a growth-minded classroom," College of Engineering, California State University, Long Beach, December 2016.

14. "Increase student learning outcomes with flipped classrooms - a collection of empirical evidences," Kaohsiung Medical University, Kaohsiung, Taiwan, February 2016.

15. "Understanding autism spectrum disorder from placental chorionic surface vascular network," China Medical University, Taichung, Taiwan, February, 2016.

16. "Increase student learning outcomes with flipped classrooms - a collection of empirical evidences," Chung Hwa University of Medical Technology, Tainan, Taiwan, February 2016.

17. "Increase student learning outcomes with flipped classrooms - a collection of empirical evidences," China Medical University, Taichung, Taiwan, January 2016.

18. "Placenta gives clues to autism spectrum disorder," Faculty Supper Club, CSU Long Beach, CA, April 29, 2014.

19. "Vessel enhancement with multiscale and curvilinear filter matching for placenta images," AMMCS - 2013, Waterloo, Ontario, Canada, August 2013.

20. "Interpretations of the common core state standards in mathematical modeling," EQALS Institute, California State University, Long Beach, June 2012.

21. "Classification on the Grassmannians: theory and applications," Mathematics Colloquium, California State University, Dominguez Hills, Carson, CA, November 2010.

22. "Classification on the Grassmannians: theory and applications," Special Session on Metric and Riemannian Methods in Shape Analysis, AMS Fall Western Section Meeting, University of California, Los Angeles, CA, October 2010.

23. "Classification on the Grassmannians," Image Processing Seminar, University of California, Los Angeles, Los Angeles, CA, May 2010.

24. "Some interesting problems in pattern recognition and image processing," Women in Math Group, University of Southern California, Los Angeles, CA, April 2010.

25. "Some interesting problems in pattern recognition and image processing," Mathematics Graduate Seminar, California State University, Channel Islands, Camarillo, CA, March 2010.

26. "An introduction to geometric data analysis and its possible applications," Mathematics Colloquium, Claremont Colleges, Pomona College, CA, October 2009.

27. "An introduction to geometric data analysis and its possible applications," Mathematics Colloquium, California State University, San Bernardino, San Bernardino, CA, October 2009.

28. "Some interesting problems in pattern recognition," Claremont College Math-in-Industry Workshop, Claremont, CA, July 2009.

29. "An academic journey of tangent," Math Club, Cypress College, Cypress, CA, April 2010.

30. "An introduction to geometric data analysis and its possible applications", Mathematics Colloquium, California State University, Fullerton, Fullerton, CA, April 2009.

31. "An academic journey of tangent," Math Day, California State University, Long Beach, Long Beach, March 2009.

32. "Geometric data analysis for face recognition: classification on the Grassmannians," Workshop on Geometry and Computation, Department of Mathematics, Tunghai University, Taichung, Taiwan, December 2007.

SELECTED PRESENTATION

1. "Identify and Support Diverse Pathways to Timely Graduation in CNSM," Faculty and Staff Research Presentations on Student Success, April 16, 2021.

2. "Creating an equitable general education quantitative reasoning class," 2020 MESCal Unconference, Cal Poly Pomona, February 22, 2020.

3. "Success of CSULB students in introductory Mathematics and Statistics courses," Data Fellows' Open Forums on Student Success, CSULB, March 21, 2018.

4. "A course in mathematical modeling for pre-service teachers: Designs and challenges," 21st Conference on Research in Undergraduate Mathematics Education (RUME), February 2018.

5. "Developing a course in mathematical modeling for pre-service secondary teachers," MAA Contributed Paper Session on the Scholarship of Teaching and Learning in Collegiate Mathematics, Joint Mathematics Meetings, San Diego, CA, January 2018.

6. "Discriminating placentas of increased risk for autism with chorionic surface vascular network features," International Federation of Placenta Association, Portland, Oregon, September 2016.

7. "Increase student learning outcomes with flipped classrooms - a collection of empirical evidences," Women in Mathematics Symposium, Pomona College, Claremont, CA, November 2015.

8. "Faculty participation in a learning community improves STEM student success," AAC&U's Network for Academic Renewal Conference, Transforming STEM Higher Education, Atlanta, GA, November 2014.

9. "Assessing the usability of digital images of human placenta with multi-scale filtering methods," International Federation of Placenta Association, Paris, France, September 2014.

10. "Improve data analytic skills through group projects in a hybrid business calculus class," The CSU Board of Trustees Meeting, CSU Chancellor's Office, Long Beach, CA, May 2014.

11. "Preparing mathematics teachers to teach modeling," The 18th Annual Conference of the Association of Mathematics Teacher Educators, Irvine, CA, February 2014.

12. "Vessel enhancement with multi-scale and curvilinear filters for placenta images," 5th Annual College of Natural Sciences and Mathematics Faculty Research Symposium, California State University, Long Beach, CA, March 2013.

13. "Breaking the raster scan paradigm: spiral scanning and advanced image processing for high speed atomic force microscopy," D. Ziegler, C. Brune, Y. Lou, T. Meyer, R. Farnham, J.-M. Chang, A. Bertozzi, P. Ashby, 2012 MRS Fall Meeting, Boston USA, November 28, 2012.

14. "Encased cantilevers and alternative scan algorithms for ultra-gentle high speed atomic force microscopy," D. Ziegler, A. Chen, S. Frank, A. Frank, R. Farnham, N. Huynh, T. Meyer, J.-M. Chang, I. Rangelow, A. Bertozzi, P. Ashby, 2012 Materials Research Society Spring Meeting & Exhibit, San Francisco USA, April 9 – April 13, 2012. (Award of excellent contribution MRS2012)

15. "Features on placental surfaces and their implications to maternal and fetal vascular pathology," 3rd Annual College of Natural Sciences and Mathematics Faculty Research Symposium, California State University, Long Beach, CA, March 2011.

16. "Applying image processing techniques to promote conceptual understanding in linear algebra class," Event: Innovative and Effective Ways to Teach Linear Algebra, II, 2010 Joint Mathematics Meetings (JMM-10), San Francisco, CA, January 2010.

17. "Face recognition under varying viewing conditions with subspace distance," Int'l Conf. on Artificial Intelligence and Pattern Recognition (AIPR-09), Orlando, FL, July 2009.

18. "Face recognition on the Grassmannians," Southern California Women in Mathematics Symposium, Loyala Marymount University, Los Angeles, CA, April 2009.

19. "Recognition of digital images of the human face at ultra low resolution via illumination spaces", 8th Asian Conference of Computer Vision, Tokyo, Japan, November 2007.

20. "Set-to-set face recognition under variations in pose and illumination", 2007 Biometrics Symposium at The Biometrics Consortium Conference, Baltimore, MD, September 2007.

21. "Illumination face spaces are idiosyncratic", Third Front Range Applied Mathematics Student Conference, University of Colorado, Denver, March 2007.

22. "Illumination face spaces are idiosyncratic,"WORLDCOMP'06 - IPCV'06, Las Vegas, NV, June 2006.

23. "Application of tangent distance to the illumination problem in the category of face recognition," CS/Math Geometric Methods for Large Data Set Seminar, Colorado State University, 2005.

RESEARCH STUDENT

CYNA NGUYEN — B.S. in Mathematics, CSULB
Thesis Title: An Analysis of Eligibility Index in Relation to Successful Completion of Pre-Calculus Mathematics at California State University Long Beach — 2021 - 2022

YALE QUAN — M.S. in Applied Statistics, CSULB
Thesis Title: A Multivariate Statistical Analysis of Major Change Patterns and Significant Factors That Influence Graduation Rates: A Case Study at California State University, Long Beach — 2019 - 2020

KIRSTEN MILLER — M.S. in Applied Statistics, CSULB
Thesis Title: Analysis of General Education Mathematics and Quantitative Reasoning Courses at California State University, Long Beach — 2019 - 2020

KIRSTEN MILLER — B.S. in Applied Mathematics, CSULB
Honor's Thesis: Analysis of Algebra Placement at California State University Long Beach — 2018

LUKE WUKMER — M.S. in Applied Mathematics, CSULB
Thesis Title: Optimized Strict Multiscale Frangi Prefiltering for Segmentation: Towards an Automated Placental Chorionic Surface Vascular Network Extraction — 2016 - 2019

DIANA GONZALEZ — M.S. in Applied Mathematics, CSULB
Thesis: Matching Students With Support Services Through a Constrained Linear Optimization Model 2016 - 2018

HIKE HAMBARSOOMIAN — M.S. in Applied Mathematics, CSULB
Thesis Title: Classification Of Placental Chorionic Surface Vasculature Network Features Using Machine Learning Techniques — 2016 - 2017

JULIA MURPHY — B.S. in Applied Mathematics, CSULB
Honor's Thesis: Student Performance and Attitudes in a Flipped Linear Algebra Course — 2014-2016

JONATHAN GUZMAN   B.S. in Applied Mathematics, CSULB
Honor's Thesis: A Principal Decision: The Case of Lending Club   2014-2015

JUSTIN SUNU   M.S. in Applied Mathematics, CSULB
Thesis Title: Applications of K-means and Spectral Clustering to Hyperspectral Video Sequences   2012 - 2014

TORIN GERHART   M.S. in Applied Mathematics, CSULB
Thesis: Convex Optimization Techniques and Their Application in Hyperspectral Video Processing   2012 - 2013

NEN HUYNH   M.S. in Applied Mathematics, CSULB
Thesis Title: A Filter Bank Approach to Automate Vessel Extraction with Applications   2011 - 2013

MARILYN VAZQUEZ   B.S. in Applied Mathematics, CSULB
Honor's Thesis: Multi-scale Vessel Extraction Using Curvilinear Filter-Matching Applied to Digital Photographs of
Human Placentas   2011-2012

RODRIGO FARNHAM   M.S. in Applied Mathematics, CSULB
Thesis: Processing & Inpainting of Sparse Data with Applications in Atomic Force Microscopy Imaging   2011 - 2012

AMY MULGREW   M.S. in Applied Mathematics, CSULB
Thesis Title: A Geometric Approach to Study the Relationship Between Maternal and Fetal Characteristics and
the Shape of Placental Surfaces   2010 - 2011

JOSE PACHECO   M.S. in Applied Mathematics, CSULB
Thesis Title: A Comparative Study for the Handwritten Digit Recognition Problem   2009 - 2011

MAN VU   M.S. in Applied Mathematics, CSULB
Thesis Title: Accuracy and Efficiency of Pairwise Alignment Algorithms   2009 - 2011

Selected press coverage

CSULB COLLEGE OF NATURAL SCIENCES AND MATHEMATICS NEWSLETTER   12/14/2023
DISCOVERY: The CNSM Factor
https://www.csulb.edu/college-of-natural-sciences-and-mathematics/discovery-the-cnsm-factor

LAIST   9/26/2019
Cal State Scrapped 'Remedial' Math, And So Far Students Are Getting Along Fine
https://laist.com/news/cal-state-remedial-math-english-college-prep-student-graduation-rates

KPCC 89.3   9/25/2019
A Look At How Cal State Reformed Its 'Remedial' Math And English Classes
https://www.kpcc.org/news/2019/09/25/90471/a-look-at-how-cal-state-reformed-its-remedial-math/

URADIO AM 690   4/9/2019
Interview

ALEKS PPL CASE STUDY   2018
California State University, Long Beach

CSULB OFFICE OF RESEARCH & ECONOMIC DEVELOPMENT (ORED) NEWSLETTER   2018
Explaining Autism Spectrum Disorder via Placenta Research
http://web.csulb.edu/divisions/aa/research/newsletter/2018-spring/01-jen-mei-chang.html

PUBLIC MEDIA   2018
A better way to math: matching courses to fields of study
https://www.youtube.com/watch?v=KhcQs2nwOcM&feature=youtu.be

CHINA UNIVERSITY, TAIWAN, NEWSLETTER   2016
Flipped Classroom

EDSOURCE   2015

Students can satisfy college math requirement while in high school
http://edsource.org/2015/students-can-satisfy-college-math-requirement-while-in-high-school/92211

IMMIGRATION NEWS NOW PODCAST   2015
Interview
https://www.stitcher.com/podcast/year-round-success/immigration-news-now-podcast/e/40053663?autoplay=true

ADDITIONAL INFORMATION

PROGRAMMING LANGUAGE	**Experienced:** MATLAB **Familiar:** Unix shell script | HTML | MAPLE | R
TYPESETTING	LaTeX
APPLICATION	Adobe InDesign | MS Offices | Xfig | GIMP
LANGUAGES	**Native:** Mandarin | **Fluent:** English | **Beginner:** Taiwanese
CITIZENSHIP	Naturalized U.S. citizen | Taiwan citizen