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- CONTACT Fitchburg State University *w:* research.sethi.org
 160 Pearl Street *e:* rickys@sethi.org
 Fitchburg, MA 01420 *p:* 978.665.3703
- RESEARCH My research uses fundamental ideas from machine learning and computational science
 INTERESTS in social computing (fact-checking misinformation and virtual communities), data science (semantic workflows for digital humanities and reproducibility), and computer vision (physics-based methods for group and crowd analysis).
- EDUCATION
- **Ph.D., Computer Science** 2004 - 2009
 University of California, Riverside
 Adviser: Amit K. Roy-Chowdhury
 Committee: Eamonn J. Keogh and Christian R. Shelton
 Area of Study: Artificial Intelligence/Computer Vision
 - **M.S., Physics/Business (Information Systems)** 1999 - 2001
 University of Southern California
 - **B.A., Molecular and Cellular Biology, Neurobiology (Physics minor)** 1996
 University of California, Berkeley
- ACADEMIC APPOINTMENTS
- **Professor of Computer Science** 2014 - Present
Professor, 2022 - Present
Associate Professor, 2018 - 2022
Assistant Professor, 2014 - 2018
 Fitchburg State University
 - **Director of Research** 2013 - Present
 The Madsci Network
 - **Consulting Scientist** 2018 - Present
 US National Academy of Sciences (NAS)'s
 The Science and Entertainment Exchange
 - **Team Lead and Adjunct Professor** 2013 - Present
 Southern New Hampshire University
 - **Adjunct Professor** 2022 - Present
 Worcester Polytechnic Institute
 - **Research Scientist** 2014
Postdoctoral Associate
 UMass Amherst/UMass Medical School
 - **NSF Computing Innovation Fellow** 2010 - 2013
 University of California, Los Angeles
 University of Southern California - Information Sciences Institute

- **Lead Integration Scientist** 2008 - 2010
Postdoctoral Scholar, 2009 - 2010
Research Associate, 2008 - 2009
 University of California, Riverside
- **Research Intern** 2006
 Physics Department, United States Coast Guard Academy
 Department of Homeland Security (DHS)
 The Washington Center
- **Graduate Student Instructor** 1999 - 2001
 University of Southern California
- **Research Intern** 1994 - 1995
 Calvin Laboratories, Lawrence Berkeley National Laboratory
 Department of Energy (DOE)
- **Engineering Aide** 1993 - 1995
 Center for EUV Astrophysics, University of California, Berkeley
 National Aeronautics and Space Administration (NASA)

GRANTS, AWARDS,
AND HONOURS

Grants and Awards

- **Amazon (AMZN) 2017 - 2020** \$80,000
 Amazon AWS Research Grant, Initial, \$35,000, Renewal, \$45,000
PI: AMZN
"Structured Discussions and Scientific Workflows for Data Analysis"
- **National Endowment for the Humanities (NEH) 2016 - 2017** \$40,000
 Digital Humanities Start-Up Grants
Co-PI: NEH Award HD-248360-16
"Scientific Workflows, Image Analysis, and Visual Stylometry in the Digital Analysis of Art"
- **Institute for Advanced Study (IAS) 2016** \$6,945
 Park City Mathematics Institute
"Data Science"
- **National Science Foundation (NSF) 2016** \$2,000
 CyberWorkshops: Resources and Strategies for Teaching Cybersecurity in Computer Science (CReST)
"Cybersecurity"
- **National Science Foundation (NSF) 2010 - 2012** \$285,371
 Computing Innovation Fellowship
PI: NSF Award 1019343/Sub Award CIF-B-17
"Machine Learning Framework for Social Computing and Collective Intelligence"
- **DeVry University (DVU) 2004** \$5,000
PI: Faculty Technology Grant
"On-Line, Interactive Computer-based Physics Laboratory"

Honours

- **Innovative Features Award** 2023
Massachusetts Colleges Online (MCO)
Courses of Distinction (COD) Award
- **CTL Most Valuable Advisor Award** 2022
Center for Teaching and Learning
Fitchburg State University
- **CTL Teacher Appreciation Award** 2022
Center for Teaching and Learning
Fitchburg State University
- **CTL Innovation Award** 2015
Center for Teaching and Learning
Fitchburg State University
- **IEEE Students Society Award for Best Instructor** 2003-2006
IEEE Students Society

SELECTED
PUBLICATIONS
(FULL PUBLICATIONS LIST
ON GOOGLE SCHOLAR)

Books

- [SB1] **Ricky J. Sethi**, *Essential Computational Thinking: Computer Science from Scratch*, Cognella Academic Publishing, 2020.

Journals

- [SJ8] Catherine A. Buell, Yolanda Gil, William P. Seeley, and **Ricky J. Sethi**, *Intelligent Workflows for Visual Stylometry*, ACM Special Interest Group on Artificial Intelligence (ACM SIGAI), 2018.
- [SJ7] **Ricky J. Sethi** and Yolanda Gil, *Scientific Workflows in Data Analysis: Bridging Expertise Across Multiple Domains*, Future Generation Computer Systems (FGCS), 2017.
- [SJ6] Richard De Veaux, Mahesh Agarwal, Maia Averett, Benjamin Baumer, Andrew Bray, Thomas Bressoud, Lance Bryant, Lei Cheng, Amanda Francis, Robert Gould, Albert Y. Kim, Matt Kretchmar, Qin Lu, Ann Moskol, Deborah Nolan, Roberto Pelayo, Sean Raleigh, **Ricky J. Sethi**, Mutiara Sondjaja, Neelesh Tiruvilumala, Paul Uhlig, Talitha Washington, Curtis Wesley, David White, and Ping Ye, *Curriculum Guidelines for Undergraduate Programs in Data Science*, Annual Review of Statistics and Its Application (Annu Rev Stat Appl), 2017.
- [SJ5] William P. Seeley, Catherine A. Buell, and **Ricky J. Sethi**, *Categories of Art and Computers: A Question of Artistic Style*, American Society for Aesthetics (ASA), 2017.
- [SJ4] Balaji Polepalli Ramesh, **Ricky J. Sethi**, and Hong Yu, *Figure-Associated Text Summarization and Evaluation*, PLOS ONE, 2014.
- [SJ3] **Ricky J. Sethi**, Hyunjoon Jo, and Yolanda Gil, *Structured Analysis of the ISI Atomic Pair Actions Dataset using Workflows*, Smart Approaches for Human Action Recognition, Pattern Recognition Letters (PRL), 2013.
- [SJ2] Ayelet Baram-Tsabari, **Ricky J. Sethi**, Lynn Bry, and Anat Yarden, *Asking scientists: A decade of questions analyzed by age, gender, and country*, Science Education (SE), 2008.

[SJ1] Ayelet Baram-Tsabari, **Ricky J. Sethi**, Lynn Bry, and Anat Yarden, *Using questions sent to an Ask-A-Scientist site to identify children's interests in science*, Science Education (SE), 2006.

Refereed Conferences and Workshops

[SC25] Charles Courchaine and **Ricky J. Sethi**, *Opening the TAR Black Box: Developing an Interpretable System for eDiscovery Using the Fuzzy ARTMAP Neural Network*, Proceedings of LegalIR in ACM European Conference on Information Retrieval (ECIR), 2023.

[SC24] Charles Courchaine and **Ricky J. Sethi**, *Fuzzy Law: Towards Creating a Novel Explainable Technology-Assisted Review System for e-Discovery*, IEEE International Conference on Big Data (BIG DATA), 2022.

[SC23] **Ricky J. Sethi**, Raghuram Rangaraju, and Bryce Shurts, *Fact Checking Misinformation Using Recommendations from Emotional Pedagogical Agents*, 15th International Conference on Intelligent Tutoring Systems (ITS), 2019.

[SC22] **Ricky J. Sethi** and Raghuram Rangaraju, *Extinguishing the Backfire Effect: Using Emotions in Online Social Collaborative Argumentation for Fact Checking*, IEEE International Conference on Web Services (IEEE ICWS), 2018.

[SC21] **Ricky J. Sethi**, Catherine A. Buell, William P. Seeley, and Swaroop Krothapalli, *An Open Access Platform for Analyzing Artistic Style Using Semantic Workflows*, IEEE International Conference on Web Services (IEEE ICWS), 2018.

[SC20] **Ricky J. Sethi**, Catherine A. Buell, and William P. Seeley, *WAIVS: An Intelligent Interface for Visual Stylometry Using Semantic Workflows*, ACM International Conference on Intelligent User Interfaces (ACM IUI), 2018.

[SC19] **Ricky J. Sethi**, *Spotting Fake News: A Social Argumentation Framework for Scrutinizing Alternative Facts*, IEEE International Conference on Web Services (IEEE ICWS), 2017. (Oral)

[SC18] Catherine A. Buell, William P. Seeley, and **Ricky J. Sethi**, *A Framework for Computing Artistic Style Using Artistically Relevant Features*, IEEE International Conference on eScience (IEEE eScience), 2017.

[SC17] **Ricky J. Sethi**, *Crowdsourcing the Verification of Fake News and Alternative Facts*, ACM Conference on Hypertext and Social Media (ACM HT), 2017. (Demo)

[SC16] **Ricky J. Sethi**, *Fact-Checking via Structured Discussions in Virtual Communities*, 3rd International Workshop on Social Media World Sensors (IEEE Sideways), 2017. (Keynote)

[SC15] **Ricky J. Sethi** and Yolanda Gil, *Semantic Workflows for Reproducibility in Computer Vision: Towards Open Publication of Experiments*, IEEE International Conference on eScience (IEEE eScience), 2016. (Oral)

[SC14] Kabir Chug and **Ricky J. Sethi**, *Collaboration in Computer Vision using Scientific Workflows*, IEEE International Conference on Collaboration Technologies and Systems (IEEE CTS), 2016.

[SC13] **Ricky J. Sethi**, *Towards Defining Groups and Crowds in Video Using the Atomic Group Actions Dataset*, IEEE International Conference on Image Processing (IEEE ICIP), 2015. (Oral)

- [SC12] **Ricky J. Sethi**, *A Perceptually-Inspired Stochastic Framework for Video Search and Analysis*, Perception Inspired Video Processing, ACM International Conference on Multimedia (ACM MM), 2014. (Oral)
- [SC11] **Ricky J. Sethi**, Yolanda Gil, Hyunjoon Jo, and Andrew Philpot, *Large-Scale Multimedia Content Analysis Using Scientific Workflows*, ACM International Conference on Multimedia (ACM MM), 2013. (Oral)
- [SC10] Yolanda Gil, Angela Knight, Kevin Zhang, Larry Zhang, and **Ricky J. Sethi**, *An Initial Analysis of Semantic Wikis*, ACM International Conference on Intelligent User Interfaces (ACM IUI), 2013.
- [SC9] **Ricky J. Sethi**, Hyunjoon Jo, and Amit K. Roy-Chowdhury, *A Generalized Data-Driven Hamiltonian Monte Carlo for Hierarchical Activity Search*, IEEE International Conference on Image Processing (ICIP), 2013.
- [SC8] **Ricky J. Sethi** and Lynn Bry, *The Madsci Network: Direct Communication of Science from Scientist to Layperson*, 21st International Conference on Computers in Education (ICCE), 2013.
- [SC7] **Ricky J. Sethi**, Hyunjoon Jo, and Yolanda Gil, *Re-Using Workflow Fragments Across Multiple Data Domains*, Proceedings of the Seventh Workshop on Workflows in Support of Large-Scale Science, ACM/IEEE Supercomputing Conference (SC), 2012. (Oral)
- [SC6] **Ricky J. Sethi** and Amit K. Roy-Chowdhury, *A Physics-based Stochastic Framework for Activity Recognition and Analysis*, 51st Conference of the Society of Instrument and Control Engineers (SICE), 2011. (Oral)
- [SC5] Matheus Hauder, Yolanda Gil, **Ricky J. Sethi**, Yan Liu, and Hyunjoon Jo, *Making Data Analysis Expertise Broadly Accessible through Workflows*, Proceedings of the Sixth Workshop on Workflows in Support of Large-Scale Science, ACM/IEEE Supercomputing Conference (SC), 2011. (Oral)
- [SC4] **Ricky J. Sethi** and Amit K. Roy-Chowdhury, *Modeling and Recognition of Complex Multi-Person Interactions in Video*, ACM Workshop on Multimodal Pervasive Video Analysis, ACM Multimedia (ACM MM), 2010. (Oral)
- [SC3] **Ricky J. Sethi** and Amit K. Roy-Chowdhury, *The Human Action Image*, International Conference on Pattern Recognition (ICPR), 2010.
- [SC2] **Ricky J. Sethi** and Amit K. Roy-Chowdhury, *A Neurobiologically Motivated Stochastic Method for Analysis of Human Activities in Video*, International Conference on Pattern Recognition (ICPR), 2010.
- [SC1] **Ricky J. Sethi**, Amit K. Roy-Chowdhury, and Saad Ali, *Activity Recognition by Integrating the Physics of Motion with a Neuromorphic Model of Perception*, IEEE Workshop on Motion and Video Computing (IEEE WMVC)/IEEE Workshop on Applications of Computer Vision (IEEE WACV), 2009.

Book Chapters

- [SB3] **Ricky J. Sethi**^{*}, Nandita M. Nayak^{*}, and Amit K. Roy-Chowdhury, *Modeling and Recognition of Complex Human Activities*, Visual Analysis of Humans, T.B. Moeslund and L. Sigal and V. KrÄEger and A. Hilton (eds.), Springer-Verlag, 2011.
- [SB2] Bi Song, **Ricky J. Sethi**, and Amit K. Roy-Chowdhury, *Wide area tracking in single and multiple views*, Visual Analysis of Humans, T.B. Moeslund and L. Sigal and V. KrÄEger and A. Hilton (eds.), Springer-Verlag, 2011.

[SB1] **Ricky J. Sethi**, Amit K. Roy-Chowdhury, and Ashok Veeraraghavan, *Gait Recognition Using Motion Physics in a Neuromorphic Computing Framework*, *Multibiometrics for Human Identification*, B. Bhanu and V. Govindaraju (eds.), Cambridge University Press, 2010.

MEDIA MENTIONS

[M8] Article, *USC ISI's 50th anniversary article featuring 8 influential researchers and research topics*, USC Information Sciences Institute, 2022.

[M7] Newspaper Article, *Fitchburg State faculty receive grant to further develop art-study tool*, Sentinel & Enterprise, 2019.

[M6] Television Interview, *Future of Artificial Intelligence*, Newsy Television, 2018.

[M5] Newspaper Article, *How citizen investigators can collaborate on crowdsourced fact-checking*, Chicago Tribune, 2017.

[M4] Newspaper Article, *Where the canvas meets the code*, Sentinel & Enterprise, 2017.

[M3] Newspaper Article, *Scientific Workflows for Visual Stylometry*, Huffington Post, 2017.

[M2] Newspaper Article, *Fitchburg State faculty receive NEH grant*, Telegram & Gazette, 2016.

[M1] Article, *Using Computers to Better Understand Art*, Communications of the ACM, 2016.

PRESENTATIONS

[P16] Invited Speaker, Computing Research Association (CRA) for Computing Innovation Fellows (CIFellows), 2021.

[P15] Keynote Speaker, *Fact-Checking Misinformation*, International Conference on Foundations Computer Sciences and Software Engineering (CSSE/FCSSE), 2021.

[P14] Keynote Speaker, *Fact-Checking via Structured Discussions in Virtual Communities*, 3rd International Workshop on Social Media World Sensors (Sideways), Prague, Czech Republic, 2017.

[P13] Invited Speaker, Science Seminar at WRHS, Wachusett, MA, 2016.

[P12] Invited Speaker, Amazon/Kiva, Westborough, MA, 2015.

[P11] Invited Speaker, *Scientific Workflows for Group Analysis in Video*, Fitchburg State University, Fitchburg, MA, 2014.

[P10] Invited Speaker, *Social Collaboration in Virtual Communities*, University of Massachusetts Medical Center, Worcester, MA, 2013.

[P9] *Structured Analysis of the ISI Atomic Pair Actions Dataset using Workflows*, SCCV 2012, University of California, Irvine, Irvine, CA, 2012.

[P8] Invited Speaker, *Social Collaboration in Virtual Communities*, University of Southern California - Information Sciences Institute, Marina del Rey, CA, 2011.

[P7] Invited Speaker, *The Madsci Network: An Ask-A-Scientist Website*, Entrepreneurship and University Research Day, IE Tech Week 2010, San Bernardino, CA, 2010.

[P6] *Human Action Image*, SCCV 2010, University of California, Irvine, Irvine, CA, 2010.

[P5] Invited Speaker, *The Data Driven Hamiltonian Monte Carlo*, USC Quantum Information and Condensed Matter Physics, University of Southern California, Los Angeles, CA, 2009.

[P4] *Activity Recognition using a Data Driven Hamiltonian Monte Carlo*, SCCV 2009, University of California, Irvine, Irvine, CA, 2009.

[P3] Invited Speaker for Java workshop for the IEEE, DeVry University, West Hills, CA, 2003.

[P2] Invited Speaker for multiple colloquiums on Computer-based Physics Labs, DeVry University, Pomona, CA, 2002-2003.

[P1] Invited Speaker for University Day, DeVry University, Pomona, CA, 2002.

PROFESSIONAL
REGISTRATIONS,
SERVICE, AND
REVIEWERSHIPS

NSF Panels for various programs like FW-HTF, GRFP (Neuroscience, Physics, and Computer Science), CIVIC Innovation Challenge, Scalable Data CyberInfrastructure, Cyberlearning CAP/DIP/EXP, etc.

- Panelist, NSF, 2012, 2013, 2017, 2018, 2019, 2020, 2021, 2022, 2023

Conference/Workshop Organizing Committees

- SESSION CHAIR, IEEE International Conference on Web Services (ICWS), 2023
- CO-CHAIR, *Making WAIVS: Workflows for the Analysis of Images in Visual Styliometry* sponsored by the National Endowment for Humanities (NEH), New England Museum Association (NEMA), Fitchburg Art Museum (FAM), and American Society for Aesthetics (ASA), 2017
- CO-CHAIR, *Scientific Workflows for Machine Learning Applications (SWMLA)* in conjunction with International Conference on Machine Learning (ICML), 2013
- Local Organizing CHAIR and Registration CHAIR, International Conference on Intelligent User Interfaces (IUI), 2013
- Demos CHAIR, International Conference on Collaboration Technologies and Systems (CTS), 2013 - 2014
- Program Committee Member, International Conference on Informatics, Electronics & Vision (ICIEV), 2012-2013
- Program Committee Member, International Conference on Connected Vehicles (ICCV), 2012-2013

Editorial Boards

- Associate Editor, *Frontiers in Artificial Intelligence*, 2021 - Present
- Editorial Board Member, *International Journal of Computer Vision & Signal Processing*, 2011 - Present
- Associate Editor-in-Chief for the *Journal of Postdoctoral Research*, 2012 - Present

Reviewerships

- Reviewer for ASEE, CHI, CSCL, CVIU, ICCVE, ICIP, IJCVSP, IJME, IJMS, IUI, IVCJ, MVAP, SICE, SMC, TSMC, PLOS ONE, et al.
- Technical Book Reviewer, Packt, “Practical Data Analysis”, 2013

Committee Service

- Tenure Committee, Fitchburg State University, 2022-2023
- Open Educational Resources Committee, Fitchburg State University, 2020 - 2022
- Computer Science Faculty Search Committee, Fitchburg State University, 2016 - 2017, 2018 - 2019, 2023
- Technology Advisory Committee (Chair), Fitchburg State University, 2016 - 2017
- Technology Advisory Committee, Fitchburg State University, 2015 - 2016
- Library Advisory Committee, Fitchburg State University, 2015 - 2016
- Center for Teaching and Learning, Fitchburg State University, 2014 - 2015
- CAA Alumni Scholarship Committee for University of California, Berkeley
- Scholarship Selection Committee for University of California, Riverside
- Curriculum Review Committee for DeVry University, 2013

Registrations and Memberships

- Member, YSP/Madsci Financial Board
- Member, American Institute of Physics
- Member, IEEE
- Fellow, North American Academy of Arts and Sciences
- ISI Representative for the USC Postdoctoral Association
- U.S. Citizen with Special Agency Check (SAC) Clearance with US Coast Guard

STUDENT ADVISING

- PHD DISSERTATION CHAIR, Charles Courchaine, National University, 2021 - 2023, Graduated 2023
 - Currently at Nike
- Supervised undergraduates and graduate students at Fitchburg State University and University of Texas, Austin, 2016 - 2017
 - Kabir Chug (University of Texas, Austin), Swaroop Krothapalli (Graduate Student), Raghuram Rangaraju (Graduate Student), B.I., Jake Lee, and Allen Perry

- Supervised undergraduates at Fitchburg State University and University of Texas, Austin on Making WAIVS, Summer 2016
 - Kabir Chug (University of Texas, Austin), Eugene Duffy, Sean O’Neill, and Allen Perry
- Co-Supervised multiple students at UMass Amherst/UMass Medical School, 2014
 - Jesse Lingeman, PhD Student at UMass Amherst
 - Balaji Polepali Ramesh, PhD Student (currently at Nuance Communications)
 - Qing Zhang, PhD Student (currently at eBay)
- SUPERVISOR POSTDOC INTERN, Lorenzo Rossi, The Madsci Network and USC Information Sciences Institute, *Social Computing and Learning*, 2012-2014
- SUPERVISOR M.S. STUDENT, Hyunjoon Jo, USC, *Physics-Based Computer Vision Methods*, 2011-2013
 - Currently at Alcatel-Lucent
- Supervised Angela Knight, Kevin Zhang, and Larry Zhang, Harvard-Westlake Summer Interns, *The Democratization of Semantic Properties: An Analysis of Semantic Wikis*, 2012
- Supervised Kabir Chug, Stonehill International School Bangalore Summer Intern, *Atomic Group Actions*, 2012
- Supervised Xinlei Chen, UCLA CSST Summer Intern from Zhejiang University, *Topic Modeling Approaches for The Madsci Network and Short Document Problem*, 2011
 - Presently at Carnegie-Mellon University
- Advised students on senior projects and undergraduate theses; selected students/projects:
 - Hyunjoon Jo, *Fire Fighting Assistant System with an Intelligent Robot* (won 1st place), 2008
 - Paul Mann, *Linear, Automated Balance Walker*, 2007
 - Christopher Clark, *Automated Ordering via an Electronic Glove Interface*, 2006
- Responsible for full course development, including lectures, labs, and discussions, both on-site and online via eCollege, Blackboard, WebCT, moodle, and Dokuwiki/PHP templates
 - Developed complete course content and websites for various classes; sample courses available at <http://www.sethi.org/classes/>

CURRICULUM DEVELOPMENT

- Developed Data Science Minor in collaboration with MATH and GIS departments, Fitchburg State University, 2023
- Developed Online Object-Oriented Development course at Southern New Hampshire University as the Subject Matter Expert (SME), 2017
- Developed Data Science Graduate Certificate at Fitchburg State University, 2016-2017
- Developed Cybersecurity Undergraduate Concentration in Computer Science at Fitchburg State University, 2016-2017

TEACHING
EXPERIENCE

Sample student evaluations available upon request. Courses experience:

Fitchburg State University

- CSC 1002, Computer Science 0 (Computational Thinking)
- CSC 1500/1550, Computer Science 1/2
- CSC 3011, Database Modeling
- CSC 3450, LAN
- CSC 3012, Introduction to Data Science (Undergraduate)
- CSC 4210, Computer Vision and Computer Graphics
- CSC 7015, Introduction to Data Science (Graduate)
- CSC 7131, Advanced Programming
- CSC 7200, Object Oriented Programming
- CSC 8008, Data Exploration Analytics and Visualization

Worcester Polytechnic Institute

- CS 539, Machine Learning (Graduate)

Southern New Hampshire University

- DAT 515, Enterprise Data Management
- IT 511, Object Oriented Application Development
- IT 620, Object Oriented Systems Design
- IT 660, Artificial Intelligence

University of Southern California

- PHYS 135, Physics for Life Sciences
- PHYS 151, Physics for Scientists & Engineers