Prashant Athavale

Department of Mathematics

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Education

2004 – 2009 **Doctor of Philosophy, Applied Mathematics and Scientific Computation**, *University of Maryland*, College Park, MD.

Thesis **Novel integro-differential schemes for multiscale image representations**.

Advisor **Prof. Eitan Tadmor**.

2004 – 2007 **Master of Science, Applied Mathematics and Scientific Computation**, *University of Maryland*, College Park, MD.

2002 – 2003 **Master of Science, Applied Mathematics**, *University of Toledo*, Toledo, OH.

2000 – 2001 **Master of Science, Electrical Engineering**, *University of Toledo*, Toledo, OH.

1995 – 1999 **Bachelor of Engineering, Electrical Engineering**, *Veermata Jijabai Technological Institute, University of Mumbai*, MH, India..

Professional Employments

2018 – **Assistant Professor**, *Clarkson University*, Potsdam, NY, US.
- Research on image processing, material science, and data science
- Teaching undergraduate and graduate level mathematics courses

2020 Spring **Paternity Leave**, *Clarkson University*, Potsdam, NY, US.

2015 – 2018 **Lecturer**, *Johns Hopkins University*, Baltimore, MD, US.
- Taught various courses including Biostatistics, Scientific computing with Python, Real Analysis, and Dynamical Systems & Chaos
- Mentored more than 20 students as an academic advisor
- Created a new course on Real Analysis for incoming PhD students

2011 – 2015 **Fields Ontario Postdoctoral Fellow**, *University of Toronto & Schulich Heart Research*, Toronto, ON, Canada.
- Developed a fast image quality enhancement algorithm based on fast multiscale decomposition
- Worked on numerical simulations of problems involving superfluidity
- Worked on image inpainting algorithms

2009 – 2011 **Postdoctoral Scholar**, *University of California, & Placental Analytics*, Los Angeles, CA, US.
- Blood vessel segmentation from placental images
- Developed C++ interface for analysis of H&E (hematoxylin and eosin) stained images
- Developed algorithms for blood-tissue segmentation from H&E images
- Worked on a novel fetal stem tree extraction algorithm using global/local image registration and Chan-Vese segmentation

Research Interests

Mathematical Image Processing, Calculus of Variations

Numerical Analysis, Partial Differential Equations

Biomedical Imaging, Statistics, Machine Learning

Awards & Honors

2017 **Professor Joel Dean Award for Excellence in Teaching**, *Department of Applied Mathematics and Statistics, Johns Hopkins University*, Baltimore, MD, US.

2014 **The Frederick V. Atkinson Teaching Award**, *for outstanding performance as an instructor and significant contribution to undergraduate teaching in the Department of Mathematics, University of Toronto*, Toronto, ON, Canada.

2010 **National Institutes of Health (NIH) Travel Award for Early Career Researchers**, *for research on human placenta in IFPA meeting*, Santiago, Chile.

2007 – 2008 **Student Representative on Graduate Student Government**, *(elected twice) University of Maryland*, College Park, MD, US.

Patents Awarded

2019 **US Patent** # US10460423B2 and **WO patent** # WO2014121400A1

Title: *System and method for medical image quality enhancement using multiscale total variation flow*

Inventors: Prashant Athavale, Adrian Nachman, Graham Wright, Perry Radau.

Patents Pending

2024 **US Patent Application No.** 63/680,887

Title: *System and method for AI-guided image denoising using weighted star-norm flow*

Inventors: Prashant Athavale, and Clarkson Students: Arun Barkhanda, Emmanuel Atindama.

Grants Awarded

2022 – 2023 **$93,444, National Security Agency**, *Summer Research Experience for Undergraduates in Mathematics.*

Role: Co PI

PI: Prof. Guangming Yao, Department of Mathematics, Clarkson University

Co PI: Prof. Joel Foisy, Department of Mathematics, SUNY Potsdam

2021 – 2022 **$66,215, US Department of Commerce**, *Restoration of Orientation Data from Polycrystalline Materials*, Federal Award ID 70NANB21H047.

Role: Sole PI

Grant Applications - Unfunded

2024 **$537,188, National Science Foundation**, *CAREER: Hybrid Deep Learning Algorithms for Restoration of Grain Orientation Maps.*

Role: Sole PI

2023 **$499,805, National Science Foundation**, *CAREER: Automated Error Detection and Correction of Crystalline Orientation Data.*

Role: Sole PI

2023 **Estée Lauder**, *Fast and Improved Measurement of Wrinkles, Under-eye Circle, and Make-up Consistency*, industrial grant proposal submitted through CAMP, Clarkson.

Role: Sole PI

2023 **$49,961, Arthritis National Research Foundation**, *Detailed Analysis of Imaging Features to Explore the Continuum of Arthritis in Spine.*

Role: Key Personnel

PI: Prof. Dale Fournier, Department of Physical Therapy, Clarkson University

2022 **$282,012, National Science Foundation**, *Research Experiences for Undergraduates (REU).*

Role: Key Personnel

PI: Prof. Guangming Yao, Department of Mathematics, Clarkson University

Co PI: Joel Foisy, Department of Mathematics, SUNY, Potsdam

Key Personnel: Prof. Sumona Mondal, Department of Mathematics, Clarkson University

2019 **Clarkson University: Ignite Graduate Research Fellowship**, *Prediction of trait depression from gait, posture and facial features using machine learning techniques.*

Role: Co PI

PI: Prof. Ali Boolani, Department of Physical Therapy

Co PI: Sumona Mondal, Department of Mathematics

Co PI: Prof. Shantanu Sur, Department of Biology

2019 **Clarkson University: Ignite Graduate Research Fellowship**, *Real-time cyber-physical threat awareness for community microgrids.*

Role: Co PI

PI: Prof. Tuyen Vu, Department of Electrical Engineering

Co PI: Prof. Jeanna Matthew, Department of Computer Science

Co PI: Prof. Thomas Ortmeyer, Department of Electrical Engineeirng

Co PI: Prof. Amir Mousavian, Department of Electrical & Mechanical Engineering

Publications (Citations 290+, *h*-index: 9)

For the most updated list of publications visit my **Google Scholar page.**

(*Color scheme: undergraduate students, graduate students*)

Journal Articles Under Review

1. Emmanuel Atindama, Conor Miller-Lynch, Huston Wilhite, Cody Mattice, Günay Doğan, Prashant Athavale, *Hybrid algorithm for filling in missing data in electron backscatter diffraction maps*, (**passed the Government's internal review** by the National Institute of Standards and Technology), submitted to Integrating Materials and Manufacturing Innovation, January 2025.

Published Peer-Reviewed Journal Articles

15. Emmanuel Atindama, Michael Ramsdell, David Wick, Sumona Mondal, Prashant Athavale, *Impact of targeted interventions on success of high-risk minority and female engineering students*, Frontiers in Education, January 2025. `https://doi.org/10.3389/feduc.2025.1435279`

14. Emmanuel Atindama, Peter Lef, Günay Doğan, Prashant Athavale, *Restoration of noisy orientation maps from electron backscatter diffraction imaging*, Integrating Materials and Manufacturing Innovation, 12, 251–266, 2023. `https://doi.org/10.1007/s40192-023-00304-8`

13. David Wick, Emmanuel Atindama, Prashant Athavale, Sumona Mondal, Michael Ramsdell, Robert Jaspersohn, John Moosbrugger, *Measuring the impact of student success retention initiatives for engineering students at a private research university*, Frontiers in Education, Sec. STEM Education Volume 7, 2022. `https://doi.org/10.3389/feduc.2022.1087064`

12. Chaya Chaipitakporn, Prashant Athavale, Prashant Athavale, Vijay Kumar, Thevasha Sathiyakumar, Marko Budišić, Shantanu Sur, *COVID-19 In the united states during pre-vaccination period: shifting impact of sociodemographic factors and air pollution*, Frontiers in Epidemiology. Sec. Infectious Disease Epidemiology, 2022. `https://doi.org/10.3389/fepid.2022.927189`

11. Prashant Athavale, Vijay Kumar, Jeremy Clark, Sumona Mondal, Shantanu Sur, *Differential impact of COVID-19 risk factors on ethnicities in the United States*, Frontiers in Public Health, 9:743003, 2021. `https://doi.org/10.3389/fpubh.2021.743003`

10. Prashant Athavale, Sumona Mondal, Seema Rivera, *Factors influencing success in advanced engineering mathematics courses: a case study*, Frontiers in Education, Sec. STEM Education, 2021. `https://doi.org/10.3389/feduc.2021.662380`

9. Prashant Athavale, Soumyabrata Dey, Sheetal Dharmatti, Aiswarya Sara Mathew, *A novel entropy-based texture inpainting algorithm*, Signal Image Video Processing 15, 1075–1080, 2021. `https://doi.org/10.1007/s11760-020-01833-x`

8. Prashant Athavale, Robert Jerrard, Matteo Novaga, Giandomenico Orlandi, *Weighted TV minimization and applications to vortex density models*, Journal of Convex Analysis, 24(2), 1051–1084, 2017. `https://www.heldermann.de/JCA/JCA24/JCA244/jca24063.htm`

7. Zhang Li, Prashant Athavale, Mihaela Pop, Graham Wright, *Multicontrast reconstruction using compressed sensing with low rank and spatially varying edge preserving constraints for high resolution MR characterization of myocardial infarction.*, Magnetic Resonance in Medicine. 78: 598-610, August 2017. `https://doi.org/10.1002/mrm.26402`

6. Yves Gennip, Prashant Athavale, Jérôme Gilles, Rustum Choksi, *A regularization approach to blind deblurring and denoising of QR barcodes*, in IEEE Transactions on Image Processing, vol. 24, no. 9, pp. 2864-2873, Sept. 2015. `https://doi.org/10.1109/TIP.2015.2432675`

5. Prashant Athavale, Robert Xu, Perry Radau, Adrian Nachman, Graham Wright, *Multiscale properties of weighted total variation flow with applications to denoising and registration*, Medical Image Analysis, 23(1), 28–42, April 2015. `https://doi.org/10.1016/j.media.2015.04.013`

4. Robert Xu, Prashant Athavale, Philippa Krahn, Kevan Anderson, et al., *Feasibility study of respiratory motion modeling based correction for MRI-guided intracardiac interventional procedures,* in IEEE Transactions on Biomedical Engineering, vol. 62, no. 12, pp. 2899-2910, Dec. 2015. `http://doi.org/10.1109/TBME.2015.2451517`

3. Robert Xu, Prashant Athavale, Adrian Nachman, and Graham Wright, *Multiscale registration of realtime and prior MRI data for image guided cardiac interventions*, IEEE Transactions for Biomedical Engineering, vol 61, issue 10, pp. 2621–2632, October 2014. `https://doi.org/10.1109/TBME.2014.2324998`

2. Prashant Athavale, and Eitan Tadmor, *Integro-differential equations based on* (BV, L^1) *minimization*, SIAM Journal on Imaging Science, 4 (1), 300-312, 2011. `https://doi.org/10.1137/100795504`

1. Eitan Tadmor, and Prashant Athavale, *Multiscale image representation using novel integro-differential Equations*, Inverse Problems & Imaging, vol. 3, no. 4, pp. 693–710, 2009. `https://doi.org/10.3934/ipi.2009.3.693`

Full Peer-Reviewed Papers in International Conferences

9. Austin Jantzi, William Jemison, Prashant Athavale, Mahesh Banavar, Erik Bollt, *Underwater time of flight camera range finding with backscatter phasor subtraction*, OCEANS Conference & Exposition, ISSN: 0197-7385, October, 2022. `https://doi.org/10.1109/OCEANS47191.2022.9977327`

8. Kevin Mack, Prashant Athavale, William Jemison, David Illig, Luke Rumbaugh, Mahesh Banavar, Erik Bollt, *Restoration of time-of-flight (ToF) underwater images using TV regularization*, Proc. SPIE 11752, Ocean Sensing and Monitoring XIII, 117520N, 2021. `https://doi.org/10.1117/12.2588047`

7. Li Zhang, Prashant Athavale, Venkat Ramanan, Jennifer Barry, Garry Liu, Nilesh Ghugre, Mihaela Pop, Graham Wright, *Improved characterization of infarct heterogeneity from high resolution T1* maps using compressed sensing and temporal PCA with weighted total variation*, Journal of Cardiovascular Magnetic Resonance, 17 (Suppl 1), W33, 2015. `https://doi.org/10.1186/1532-429X-17-S1-W33`

6. Robert Xu, Prashant Athavale, Philippa Krahn, Kevan Anderson, Jennifer Barry, Labonny Biswas, Venkat Ramanan, Nicolas Yak, Mihaela Pop, Graham Wright, *Respiratory motion model based correction for improving the targeting accuracy of MRI-guided intracardiac electrophysiology procedures*, Journal of Cardiovascular Magnetic Resonance, 17 (Suppl 1), O24, 2015. `https://doi.org/10.1186/1532-429X-17-S1-O24`

5. Robert Xu, Prashant Athavale, Yingli Lu, Perry Radau, Graham Wright., *Myocardial segmentation in late-enhancement MR images via registration and propagation of cine contours*, 2013 IEEE 10th International Symposium on Biomedical Imaging, San Francisco, CA, USA, 2013, pp. 856-859. `https://doi.org/10.1109/ISBI.2013.6556610`

4. Prashant Athavale, Robert Xu, Perry Radau, Adrian Nachman, and Graham Wright, *Multiscale TV flow with applications to fast denoising and registration*, Proc. SPIE 8669, Medical Imaging 2013: Image Processing, 86692K, 2013. `https://doi.org/10.1117/12.2007190`

3. Prashant Athavale, and Luminita Vese, *Placental fetal stem segmentation in a sequence of histology images*, Proc. SPIE 8314, Medical Imaging 2012: Image Processing, 83143A, 2012. `https://doi.org/10.1117/12.911763`

2. Prashant Athavale and Eitan Tadmor, *Novel integro-differential equations in image processing and its applications*, Proc. SPIE 7533, Computational Imaging VIII, 75330S 2010. `https://doi.org/10.1117/12.850779`

1. Ezzatollah Salari and Prashant Athavale, *Acceleration in iterative image restoration by manipulation of the gain parameter*, Proc. SPIE 5014, Image Processing: Algorithms and Systems II, pp. 213–220, 2003. `https://doi.org/10.1117/12.473069`

Journal Articles in Preparation/Near Submission

iii. Dale Fournier, Prashant Athavale, *A new continuous score for diffuse idiopathic skeletal hyperostosis,* expected 2025

ii. Minh-Ngoc Huynh, Prashant Athavale, *Postpandemic predictors of academic success*, expected 2025

i. Pijush Sutradhar, Prashant Athavale, Kenneth Wallace, *Characterization of growth rate and intestinal development during post-embryogenesis*, expected 2025

Peer-Reviewed Abstracts Presented in International Conferences

13. Emmanuel Atindama and Conor Miller-Lynch, Cody Mattice, Huston Wilhite, Tarun Sharma, Günay Doğan, Prashant Athavale, *A hybrid algorithm for restoring grain orientations of material microstructures*, SIAM Conference on Imaging Science, 2024. `https://meetings.siam.org/sess/dsp_talk.cfm?p=136097`

12. Emmanuel Atindama, Günay Doğan, *Reconstruction of grain orientation data using U-Nets*, SIAM Conference on Materials Science, 2024. `https://meetings.siam.org/sess/dsp_talk.cfm?p=137059`

11. Prashant Athavale, Emmanuel Atindama, Peter Lef, Günay Doğan, *Application of weighted TV flow to material science problems*, International Congress on Industrial and Applied Mathematics, Tokyo, 2023. `https://iciam2023.org/registered_data?id=01136#01712`

10. Emmanuel Atindama, Prashant Athavale, Günay Doğan, *Reconstructing electron backscatter diffraction data using vectorized total variation flow*, International Congress on Industrial and Applied Mathematics, Tokyo, 2023. `https://iciam2023.org/registered_data?id=CT051#02641`

9. Emmanuel Atindama, Günay Doğan, Prashant Athavale, *Restoration of the electron backscatter diffraction data using vectorized total variation flow*, Joint Mathematics Meetings, Boston, 2023. `https://meetings.ams.org/math/jmm2023/meetingapp.cgi/Paper/22744`

8. Huston Wilhite, Cody Mattice, Emmanuel Atindama, Prashant Athavale, *Electron backscatter diffraction data inpainting using a hybrid approach of machine learning and exemplar-based algorithms*, Joint Mathematics Meetings, Boston, 2023. `https://meetings.ams.org/math/jmm2023/meetingapp.cgi/Paper/22611`

7. Emmanuel Atindama, Günay Doğan, Prashant Athavale, *Weighted total variation flow for crystallographic data reconstruction*, SIAM Conference on Imaging Science, Virtual, 2022. `https://meetings.siam.org/sess/dsp_talk.cfm?p=119385`

6. Emmanuel Atindama, Peter Lef, Prashant Athavale and Günay Doğan, *Weighted total variation based algorithms for reconstruction of grain orientation data: a comparative study*, SIAM Conference on Material Science, (virtual) Bilbao, Spain, 2021, `easychair.org/smart-program/SIAM-MS21/2021-05-18.html#talk:165420`

5. Prashant Athavale, Emmanuel Atindama, Günay Doğan and Peter Lef, *Partial differential equation based methods for reconstruction of grain orientation data*, SIAM Conference on Material Science, Bilbao, Spain, 2021, `easychair.org/smart-program/SIAM-MS21/2021-05-18.html#talk:165424`

4. Prashant Athavale, Sheetal Dharmatti, and Aiswarya Sara Matthew, *An entropy-based algorithm for texture image inpainting*, AMS Special Session on Statistical, Variational, and Learning Techniques in Image Analysis and their Applications to Biomedical, Hyperspectral, and Other Imaging, Baltimore, 2019. `jointmathematicsmeetings.org/amsmtgs/2217_abstracts/1145-65-2172.pdf`

3. Prashant Athavale, Luminita Vese, Carolyn Salafia, *Automated tracking of fetal stems from inaccurate initial guess*, Meeting of the International-Federation-of-Placenta-Associations, vol. 32, no. 9, pp. A22–A22, 2011. `https://www.researchgate.net/publication/294394276`

2. Prashant Athavale, Carolyn Salafia, Luminita Vese, *Villous structural study based on multilevel registration*, Meeting of the International Federation of Placenta Associations, vol 31, no. 9, A101–A102, 2010. `https://www.researchgate.net/publication/298284870`

1. Prashant Athavale, Pascal Getreuer, Carolyn Salafia, *Analysis of inflammation in regards to distance of neutrophil migration in histopathology images: a marker of infection severity/duration?*, International Federation of Placenta Associations Meeting, vol 31, no. 9, P3.11, 2010. `https://www.researchgate.net/publication/298295076`

Peer-Reviewed Posters in International Conferences

3. Conor Miller-Lynch, Emmanuel Atindama, Tarun Sharma, Huston Wilhite, Cody Mattice, Prashant Athavale, Günay Doğan, *Demonstration of a hybrid restoration algorithm for grain orientation data of materials*, SIAM Conference on Imaging Science, 2024. `https://meetings.siam.org/sess/dsp_talk.cfm?p=137341`

2. Emmanuel Atindama, Günay Doğan, Prashant Athavale, *Advances toward parameter-free reconstruction of grain orientation data*, SIAM Conference on Materials Science, 2024. `https://meetings.siam.org/sess/dsp_talk.cfm?p=137061`

1. Emmanuel Atindama, Günay Doğan, Prashant Athavale, *Improving denoising performance in crystallographic orientation data*, SIAM Conference on Imaging Science, 2022. `https://meetings.siam.org/sess/dsp_talk.cfm?p=119462`

Recent Presentations

○ Prashant Athavale, *Mathematical methods for restoration of orientation data*, Mechanical and Aerospace Engineering Seminars, Clarkson University, Potsdam, NY, US, scheduled October 2024

○ Prashant Athavale, *Mathematical image restoration techniques from PDEs to AI and beyond*, CAMP meeting, Clayton, NY, US, 2024

○ Prashant Athavale, *A Hybrid algorithm for restoring grain orientations of material microstructures*, Society for Industrial and Applied Mathematics Conference on Imaging Science, Atlanta, GA, US, 2024

○ Prashant Athavale, *Toward parameter-free restoration of noisy orientation maps*, National Institute of Standards & Technology, Gaithersburg, MD, US, 2024

○ Prashant Athavale, *Reconstructing electronbackscatter diffraction data using vectorized total variation flow*, International Congress of Industrial and Applied Mathematics, Tokyo, Japan, 2023

○ Prashant Athavale, *Partial differential equation based methods for reconstruction of grain orientation data*, National Institute of Standards & Technology, Gaithersburg, MD, US, 2021

- Prashant Athavale, *An entropy-based algorithm for texture image inpainting*, AMS Special Session on Statistical, Variational, and Learning Techniques in Image Analysis and their Applications to Biomedical, Hyperspectral, and Other Imaging, Baltimore, MD, US, 2019

- Prashant Athavale, *Tale of two hierarchical ways of processing image data*, Department of Mathematics, Clarkson University, Potsdam, NY, US, 2018

Presentations by Students at International Conferences

- Conor-Miller Lynch, *Demonstration of a hybrid restoration algorithm for grain orientation data of materials*, Atlanta, GA, US

- Emmanuel Atindama, *Crystallographic data restoration using weighted total variation flow and a hybrid deep learning method*, Colloquium, Department of Mathematics, Clarkson University, Potsdam, NY, US, 2024

- Emmanuel Atindama, *Reconstruction of grain orientation data using U-Nets*, Society for Industrial and Applied Mathematics Conference on Materials Science, Atlanta, GA, US, 2024

- Emmanuel Atindama, *Reconstructing electron backscatter diffraction data using vectorized total variation flow*, International Congress on Industrial and Applied Mathematics, Tokyo, Japan, 2023

- Emmanuel Atindama, *Restoration of the electron backscatter diffraction data using vectorized total variation flow*, Boston, MA, US, 2023

- Huston Wilhite, *Electron backscatter diffraction data inpainting using a hybrid approach of machine learning and exemplar-based algorithms*, Joint Mathematics Meetings, Boston, MA, US, 2023.

- Emmanuel Atindama, *Weighted total variation flow for crystallographic data reconstruction*, Society for Industrial and Applied Mathematics Conference on Imaging Science, Virtual, 2022

- Peter Lef, *Weighted total variation based algorithms for reconstruction of grain orientation data: a comparative study*, Society for Industrial and Applied Mathematics Conference on Material Science, (virtual) Bilbao, Spain, 2021

- Kevin Mack, *Restoration of time-of-flight (ToF) underwater images using TV regularization*, SPIE Defense + Commercial Sensing, virtual, 2021

Presentations by Students at Local Conferences

- Minh-Ngoc Huynh, *Looking into student performance with statistics*, Research and Project Showcase (RAPS) conference, Clarkson University, Potsdam, NY, US, 2024

- Emmanuel Atindama, *Measuring the impact of student success retention initiatives for engineering students at a private research university*, Research and Project Showcase (RAPS) conference, Clarkson University, Potsdam, NY, US, 2023

- Emmanuel Atindama, *Weighted TV flow for crystallographic data reconstruction*, Mathematics Conference and Competition of Northern New York, 2022

- MacGregor Winegard, *Image inpainting of EBSD images with large areas removed*, Research and Project Showcase (RAPS) conference, Clarkson University, Potsdam, NY, US, 2021

Taylor Jade Collins, *Matching shoeprints of a suspect with shoeprints obtained from a crime scene through rigid registration*, Research and Project Showcase (RAPS) conference, Clarkson University, Potsdam, NY, US, 2019

Teaching Portfoilio

Teaching Evaluations Summary at Clarkson University

Total students: 1,276, mean Q 19 score: 4.1, mean Q 20 score 4.0

Semester	Course (# students)	Q 19 score[1]	Q 20 score[2]
32. Fall 2024	CS573-01 (6)	**4.8**	**4.5**
31. Fall 2024	CS473-01 (18)	4.4	4.3
30. Fall 2024	STAT383-02 (69)	3.8	3.8
29. Fall 2024	STAT383-01 (82)	3.5	3.4
28. Spring 2024	MA232-03 (53)	4.0	4.2
27. Spring 2024	MA232-01 (92)	3.8	4.0
26. Fall 2023	STAT 383-01 (29)	4.2	3.6
25. Fall 2023	STAT 383-02 (81)	4.0	3.8
24. Summer 2023	MA231-D1 (26)	4.6	4.6
23. Spring 2023	STAT518-01 (7)	4.7	4.7
22. Spring 2023	STAT318-01 (27)	3.8	3.6
21. Spring 2023	MA232-01 (75)	4.3	4.1
20. Fall 2022	MA231-01 (78)	3.2	3.3
19. Fall 2022	MA231-02 (49)	3.4	3.3
18. Summer 2022	MA231-D1 (21)	4.3	4.0
17. Spring 2022	STAT584-01 (9)	4.4	4.3
16. Spring 2022	STAT384-01 (7)	4.5	4.7
15. Spring 2022	STAT318-02 (24)	4.4	4.2
14. Fall 2021	MA526-01 (5)	**5.0**	**5.0**
13. Fall 2021	MA231-02 (54)	4.0	3.8
12. Spring 2021	MA132-04 (62)	3.4	3.4
11. Spring 2021	MA132-06 (36)	3.7	3.7
10. Fall 2020	MA231-02A (35)	4.1	4.0
9. Fall 2020	MA231-02B (34)	3.9	4.0
8. Fall 2020	MA132-03A (20)	4.3	4.1
7. Fall 2020	MA132-03B (27)	4.0	4.2
Spring 2020	*Paternity Leave*	–	–
6. Fall 2019	MA132-03 (34)	4.3	4.3
5. Fall 2019	MA522* (2)	–	–
4. Spring 2019	MA330-01 (68)	4.0	4.0
3. Spring 2019 *created new course*	MA725-01 (10)	**5.0**	**4.9**
2. Fall 2018	MA330-01 (70)	3.0	3.4
1. Fall 2018	MA330-02 (66)	2.9	3.3

[1] *Q 19: Overall, how would you rate this instructor?*

[2] *Q 20: Overall, how would you rate this course?*

*fewer than 5 students enrolled, so no statistics were recorded for MA522

All Teaching History

2018-present   **Clarkson University**, Potsdam, NY, US.

Graduate   Computer Vision, CS573

Real Analysis, MA522

Convex Optimization & Analysis, MA526 (**Dean's Recognition** for high evaluations)

Advanced Applied Statistics, STAT584

Essential Biostatistics, STAT518

Developed a Graduate Seminar Course in Machine Learning, MA725

Undergrad   Biostatistics

Calculus III, MA231

Calculus II, MA132

Elementary Differential Equations, MA232

Probability and Statistics, STAT383

Advanced Engineering Mathematics, MA330

2015 – 2018   **Johns Hopkins University**, Baltimore, MD, US.

Graduate   *Developed* a new Real Analysis Course for Graduate Comprehensive Exams

Undergrad   Dynamical Systems and Chaos

Linear Algebra & Differential Equations

Probability & Statistics for Engineers

Probability & Statistics for Life Sciences

Scientific Computing with Python

2012-2015   **University of Toronto**, Toronto, ON, Canada.

Undeargrad   Calculus II: Single & Multivariate

Calculus III: Multivariate Calculus

Calculus: Early Transcendentals

Single Variable Calculus

2011   **University of California**, Los Angeles, CA, US.

Graduate   Advanced Numerical Methods

2005-2009   **University of Maryland**, College Park, MD, US.

Undergrad   Multivariate Calculus

Single Variable Calculus

2001-2005   **University of Toledo**, Toledo, OH, US.

Undergrad   College Algebra

Elementary Algebra I

Elementary Algebra II

Mathematics for Life Sciences, Calculus & Statistics

Experience as a Teaching Assistant

2006   **Multivariate Calculus**, *University of Maryland, College Park.*

2006   **Linear Algebra**, *University of Maryland, College Park.*

2005 **Differential Equations**, *University of Maryland, College Park*.

2005 – 2007 **Mathematics & Statistics**, *Mathlab, University of Maryland, College Park*.

2002 – 2005 **Mathematics, Statistics, & Physics**, *Learning Enhancement Center, University of Toledo, Toledo*.

Mentoring

Graduate Students

2019 – 2024 **Emmanuel Atindama**, *Dissertation title: Crystallographic Data Reconstruction Using Weighted Total Variation Flow and a Hybrid Deep Learning Method*, Emmanuel published two published Journal Articles, and nine conference publications, with two more journal articles under review. He recently secured an academic position at the University of Toledo, OH, US.

2023 -present **Arun Barkhanda**, *Dissertation title: Artificial-Intelligence Guided Image Restoration Methods*, Arun has applied for a patent with me and Emmanuel.

Undergraduate Researchers

2024 -present **Minh-Ngoc Huynh**, a Clarkson-School female student from an underrepresented minority (URM) group in STEM is currently working with me on a statistical project to identify predictors of success in STEM fields.

2024 – 2025 **Gabriella Zhalov**, I advised Gabriella and directed her honors' capstone project in statistics titled, *Home Rink Advantage in the Eastern College Athletic Conference*.

2023 –2024 **Conor Miller-Lynch**, worked with me since he took my elementary differential equations course at Clarkson University, leading to a Journal article currently under review, and he presented his work at the Society for Industrial and Applied Mathematics, Imaging Science conference. Recently, he **joined the graduate program** in the Computer Science department at the University of North Carolina, Charlotte, NC.

2022 **Cody Mattice & Huston Wilhite**, worked as a team under my supervision in the Clarkson REU program on hybrid inpainting algorithms. Their work led to a journal publication, currently under review. Huston is **now a graduate student** in the University of Michigan, Ann Arbor in the Computer Science department.

2021 – 2024 **Peter Lef**, a Clarkson undergraduate student who started working with me on weighted total variation (TV) flow in his freshman year, coauthored a paper in a prestigious material science journal–*Integrating Materials and Manufacturing Innovation*, along with three conference publications. In 2023, he won the ***R. Gerald Bradshaw Junior Award*** at Clarkson University, and later **interned at NASA and NIST**, eventually joining a software start-up company.

2021 **MacGregor Winegard**, an REU student worked on modified exemplar-based inpainting algorithm that paved way to my future work on the topic. He now works as a **data engineer at KPMG**.

2019 **Taylor Jade Collins**, a motivated black female student from an underprivileged background, worked on a project titled: *Matching Shoeprints of a Suspect with Shoeprints Obtained from a Crime Scene Through Rigid Registration*, winning the best poster *and* best presentation award at the Research and Project Showcase (RAPS) conference. She later worked as a global security intern at **Lawrence Livermore National Laboratory**.

Professional Service

Editorial and Review Service

- **Associate Editor**, *Signal, Images and Video Processing Journal by Springer-Nature.*
- **Reviewer**, *Society of Industrial and Applied Mathematics (SIAM) Journal on Mathematical Analysis.*
- **Reviewer**, *Oxford University Press.*
- **Reviewer**, *Current Medical Imaging Reviews.*
- **Reviewer**, *Frontiers in Public Health.*
- **Reviewer**, *Frontiers in Education.*

Scientific Community, International Level

2019 **Judge**, Mathematical Association of America, Student Poster Session, Baltimore, MD, US.

2020 **Minisymposium Organizer**, *Society for Industrial and Applied Mathematics, Imaging Science Conference: Toronto.*

University-wide Service

2024 **Student Recruitment Efforts**, *Contacted potential incoming undergraduate students as a part of university-wide efforts to increase undergraduate enrollment.*

2022 -present **Member**, *Undergraduate Students Admissions Team: worked with the Office of Undergraduate Admissions, the Director of Business Analytics, and the Director of Projects & IT Infrastructure*, Clarkson University.

2021 – 2022 **Member of the Task Force on Student Persistence**, Clarkson University.

2024 – **External Dissertation Committee Member**, *Lokesh Saravana, Avisors: Prof. Jianhua Zhang and Prof. Tony Tuyen Vu, "Enhanced Conditional GAN for Forced Oscillation Identification in Power Systems".*

2020 – 2023 **External Dissertation Committee Member**, *Lin Jiang, Advisor: Prof. Ming-Cheng Cheng, "Physics-based data-driven learning methods for effective thermal simulations of microprocessors".*

2021 **Hiring Committee**, *Institute for STEM Education*, Clarkson University.

2019 **Judge**, *Research and Project Showcase (RAPS) poster session.*

Mathematics Department Service

2024 **Departmental Website Reorganization**, *Created colloquium page and graduate students' webpage.*

2022 -present **Chair, Colloquium Committee**, *Department of Mathematics*, Clarkson University.

2022 -present **Real Analysis Bootcamp**, *Prepared and uploaded lecture notes on Moodle, led discussion sessions.*

2021 -present **Teaching Assistants' Interviews**, *Conducted interviews for the selection of incoming cohorts of graduate students for teaching assistant positions.*

2020 **Hiring Committee**.

2020 **Knight Writer**, *Organized a Zoom writing group during the COVID-19 Pandemic.*

2018 -present **Comprehensive Exams Writing and Organization**.

2018 – 2022 **Graduate Committee Member**, *Department of Mathematics*, Clarkson University.

Graduate Advisory Committees

2022 **Dissertation Committee Member**, *Sudam Surasinghe, Advisor: Prof. Erik Bollt, "Learning Features of Dynamical Systems by Data Driven Analysis Methods"*.

2021 **Dissertation Committee Member**, *Kyle Connelly, Advisor: Prof. Kathleen Kavanagh, "Hybridized Ant Colony and Particle Swarm Optimization with a local search for constrained MINLP"*.

Community Outreach

○ **Public Lecture**: *What do soap bubbles have to do with Monalisa?*, Science Café, Potsdam, NY, US, 2023

○ **Judge**, Roller Coaster Camp Events 2024, 2021

○ **Hiring Committee**, for the Assistant Principal position at Lawrence Avenue Elementary School, Potsdam, NY, US

○ **YouTube Channel**: *Prashant's educational videos*
`https://www.youtube.com/channel/UCzFfBnh2PVrtvJUxswgOF8g`

○ **Blogs**
Image processing is fun! `http://image-processing-is-fun.blogspot.com/`
UNIX, live on command line, `http://unix123.blogspot.com`
Calculus 1.5, `http://calculus1b.blogspot.com`

Professional Certifications

2022 **Accommodating Disabilities Certificate**, completed this course at Clarkson University with the goal of ensuring a safe and healthy environment for all community members.

2021 **RISE Workshop**, participated in this eight-week workshop to learn methods for improving student communication, implement industry-recommended best practices for online course design, and utilize time-saving student engagement strategies, Clarkson University.

2020 **Bullying in the Workplace**, *completed this training created awareness about what bullying is in the workplace, how employees are negatively affected by bullying*, Clarkson University.

2018 -present **Social & Behavioral Research - Basic/Refresher**, completed this Citi Program course to acquaint with the best practices in my STEM research work.

Computer Skills

Advanced Python, R, Matlab, C/C++, Unix, OS X

Scripts HTML, LaTeX