Theodore J. LaGrow

Curriculum Vitae
Address: 655 McDonald St SE, Atlanta, Georgia, 30312
Email: tjlagrow@gmail.com

Education

Ph.D. Electrical and Computer Engineering Expected May 2022

Georgia Institute of Technology, Atlanta, GA

Advisors: Dr. Shella Keilholz (BME), Dr. Jeff Davis (ECE)

Minor: Neuroscience

MBA, Master of Business Administration, Scheller College of Business Expected May 2022

Georgia Institute of Technology, Atlanta, GA

Concentrations: Entrepreneurship, Management, Computational Finance

M.S. Electrical and Computer Engineering May 4th, 2019

Georgia Institute of Technology, Atlanta, GA

Advisor: Dr. Eva Dyer

Concentrations: Computer Vision, Machine Learning, and Computational Neuroscience

B.S. Computer and Information Science June 19th, 2017
B.S. Mathematics June 19th, 2017

University of Oregon, Eugene, OR

Advisors/Mentors: Dr. Boyana Norris, Dr. Christopher Sinclair, Dr. Hank Childs, Katherine Harmon

Departmental Honors: Computer and Information Science

Minors: Physics and Theatre Arts

Notable Awards

- NSF GRFP **Honorable Mention** (2019)
    - *Project Title:* Multi-Stage Pathology Quantification of Alzheimer's Disease using Object and Cytoarchitecture Estimation in High-Resolution Neuroanatomical Images

Publications & Posters

- E. C. Johnson, …, **T. J. LaGrow,** …, E. L. Dyer, K. Kording, W. Gray-Roncal "Toward A Reproducible, Scalable Framework for Processing Large Neuroimaging Datasets." In review to Oxford Academic Gigascience. Summitted April 2019.
    - bioRxiv doi: https://doi.org/10.1101/615161
- **T. J. LaGrow**, M. G. Moore, J. A. Prasad, A. Webber, M. A. Davenport, and E. L. Dyer, "Sparse Recovery Methods for Estimating Cytoarchitectonic Divisions," in review to PLOS One. Summitted July 2019.
    - bioRxiv doi: https://doi.org/10.1101/445742
- **T. J. LaGrow**, M. G. Moore, J. A. Prasad, A. Webber, M. A. Davenport, and E. L. Dyer "Approximating cellular densities from high-resolution neuroanatomical imaging data," IEEE Int. Engineering in Medicine and Biology Conf., Honolulu, Hawaii, July 2018.
- **T. J. LaGrow**, J. Bieker, B. Norris, "Do You Know Where Your Research Is Being Used? An Exploration of Scientific Literature Using Natural Language Processing." Oregon Undergraduate Research Journal, vol. 10, no. 1, ser. 2017, Feb. 2017, pp. 20–31. 2017, doi: 10.5399/uo/ourj.10.1.4
- **T. J. LaGrow**, C. Sinclair. "Complex Hawkes Processes and the Prediction of Aftershocks." Poster presented at: 7th Annual Oregon Undergraduate Research Symposium; 2017 May 18; Eugene, OR.
- **T. J. LaGrow**, Y. Ahmadian. "Short Term Memory and the Effects of Locomotion." Poster presented at: 7th Annual Oregon Undergraduate Research Symposium; 2017 May 18; Eugene, OR.
- **T. J. LaGrow**, J. Bieker, B. Norris. "Do You Know Where Your Research Is Being Used? An Exploration of Scientific Literature Using Natural Language Processing." Poster presented at: 6th Annual Oregon Undergraduate Research Symposium; 2016 May 20; Eugene, OR.

Notable Projects

- SABER: Scalable Analytics for Brain Exploration Research Using X-Ray Microtomography and Electron Microscopy (Advisors: Dr. Eva Dyer, Dr. William Grey-Roncal [Johns Hopkins University and Applied Physics Lab])
    - PhD trainee funded on the grant by the National Institute of Mental Health of the National Institutes of Health under Award Number R24MH114799.
    - Paper submitted to Gigascience 2019. Contribution: developed method for Randomized Hyperparameter Optimization Resampling to counteract a bottleneck in our pipeline.
- Approximating Cellular Density (ArCaDe) (Advisor: Dr. Eva Dyer)
    - Automated estimation of cellular architecture in imaging datasets using spatial point processes. The method currently quantifies the cortical layers end-to-end in Nissl-stained mice images unsupervised based on cellular densities.
    - A robust method was developed to perform both unsupervised and supervised detection of cell bodies on the Nissl-stained images.
    - Two papers are currently associated with this project.
- Analysis of Neural Clustering in Mice (Advisor: Dr. Yashar Ahmadian, Neuroscience Department)
    - Funded by the Presidential Undergraduate Research Scholarship
    - Developed techniques to greater understand of the effects of locomotion on short-term memory using data derived from neuron clusters of the visual cortex of mice
- Natural Language Processing of IEEE Database (Advisor: Dr. Boyana Norris, CIS Department)
    - Funded by NSF REU Grant: 1550202
    - First author publishing and poster presentation at Oregon Undergraduate Symposium
    - Using Python, Scala, Sentiment APIs to qualify past research based on large data sets
- Hawkes Process Modeling of Earthquakes (Advisor: Dr. Christopher Sinclair, Math Department)
    - Exploring variations of self-exciting processes to estimate future magnitudes of earthquakes

Scholarships & Fellowships

- Graduate Research Assistantship Fellowship (2017-2019)
  - Wallace H. Coulter Department of Biomedical Engineering at Georgia Institute of Technology and Emory University
- Presidential Undergraduate Research Scholarship Recipient (2016-2017)
  - **Top research scholarship** at University of Oregon
- REU Researcher with the High-Performance Computing Lab at UO (2016-2017)
- University of Oregon Presidential Scholarship Recipient (2013-2017)
  - **Full tuition based on merit**
- University of Oregon Summit Scholarship Recipient (2013-2017)
- Intel Scholarship Recipient (2013)

Experiences & Teaching

Head TA for ECE4122/6122 (Advanced Programming Techniques)   Fall 2019
- Lead a team of 9 TAs for a class of 300 students organizing grading, assignment ideation, and online discussion (Piazza/Canvas)
- Material taught: Fundamentals of C++, multithreading, OpenMP, MPI, OpenGL, and CUDA.
- Nominated for ECE Departmental Outstanding GTA Award for Fall 2019.

Contact: Dr. Jeffery Hurley, email: jeffery.hurley@gtri.gatech.edu

Create-X (Insight Optics)   Summer 2019
- **Winner** of the 12-week Incubator Program and offered significant investments by Chris Klaus.
- 350 startup companies applied for the 2019 cohort, 50 team were accepted, and 30 teams were able to pitch on stage at the Fox Theater in Atlanta for a crowd of venture capitalist and investors.

Contact: Dr. Aaron Enten, email: aaron@io.care

Insight Optics (Artificial Intelligence and Computer Vision Engineer)   May 2018-present
- Startup connecting primary care providers with eye care specialists for assisted retinal screenings.
- Lead the technical development of state-of-the-art algorithms for commercially available optic sensors.

Contact: Dr. Aaron Enten, email: aaron@io.care

Head TA for CS4400 (Introduction to Databases)   Summer 2019
- Lead a team of TAs to develop the course final project, lead administration of exams, managed the online communication for students (Piazza), and held weekly office hours.
- Presented full 2-hour lecture on Storage Systems and Indexing.
- <u>Nominated</u> for CoC Departmental Outstanding GTA Award for Summer 2019.

Contact: Dr. Aibek Musaev, email: aibek.musaev@gatech.edu

Grand Challenge Facilitator at Georgia Tech   August 2017-present
- Select incoming freshmen in teams of approximately 6 will engage in innovation projects specific to domains of their choice. As a facilitator, I lead 2 teams helping navigate the successes, failures, and challenges that arise in each project every year

Contacts: Dr. Wes Wynens, Dr. Jeff Davis, emails: wes.wynens@gatech.edu, jeff.davis@ece.gatech.edu

Neurohackadamy   July 30th – August 10th, 2018
- Neurohackademy is a competitively selective two week-hands-on summer institute in neuroimaging and data science focused on the developing and understanding of reproducible neuroimaging analyses held at the University of Washington.

Select Undergraduate Assistants   August 2017-present
- Alexis Webber (BME, expected graduation: May 2019)
- Heather Whittaker (ECE, expected graduation: May 2022)

Essay Reviewer with College Prep Program (CPP) at APL   May 2018-Sept 2018
- Aimed for first-generation students to provide individualized advice, assist with college applications, and help alumni on paths to achieve success in academia. Over the last the last decade, 168 students have participated in the program and 98% are on track to complete or have completed a bachelor's degree and 81% plan to pursue or are pursuing a graduate or doctoral degree.

QBB Intern at Oregon Health and Science University   Summer 2017

- Contributed to the development of the Biomedical Evidence Graph (BMEG): a graph database containing a union of several open source genomic and proteomic datasets, developing machine learning classifiers to help predict drug response from RNA-seq and cell-line data

Undergraduate TA/Grader   January-June 2017

- CIS 315: Algorithms (Winter/Spring 2017: Dr. Christopher Wilson)
- CIS 330: C/C++ & Unix (Winter 2017: Dr. Boyana Norris; Spring 2017: Dr. Hank Childs)

QuackCon Hack-A-Thon (Principle Organizer)   Summer 2016 – October 14th-16th, 2017

- 146 person Hack-A-Thon at UO. 60K raised for the event. Notable sponsors: Nike, Intel, IEDO, ADPM, GitHub, Portland Trailblazers, MLH, SportsRadar

IT Help Desk Intern at ON Semiconductor   Summer 2015 & Summer 2016

- Developed Windows 7 image with various GPOs, alpha and beta testing
- Deployed and maintained 600 Windows 7 machines in ISO 5 clean room

Mentor Resident Assistant   2014-2017

- 3 years of developing communities of 60+ UO residents while facilitating 1:1's, diversity workshops, and academic programs while mentoring and programming for 1st year RAs

Other Awards & Honors

- Nominated for Departmental Outstanding GTA Award – ECE4122/6122 (Fall Term 2019)
- Nominated for Departmental Outstanding GTA Award – CS4400 (Summer Term 2019)
- Sigma Xi Associated Member (Scientific Research Honors Society) (2019)
- First Place (Team Leader) – NYU/MLB Media Lab's Hack-A-Thon for Data Visualization (2017)
- Outstanding Technical Prize / Overall Best Project for UO's CIS441 (Ray Tracing Spheres, 2016)
- Irene Ryan Nomination (Kennedy Center American College Theater Festival) for Spring Awakening performance of Melchior (2014)

- OSAA State Winner for Classical Bass Singing (2013)
- International Honor Thespian (highest honor for students involved in HS theater worldwide, 2013)
- 3rd degree Black Belt in TaeKwonDo (USWC TaeKwonDo, 2008)
- Junior Olympic Qualifier for TaeKwonDo Forms (USWC TaeKwonDo, 2008)
- Eagle Scout (Youngest in Oregon, 2008)