

Adam J. Coscia – Curriculum Vitae

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EDUCATION

Ph.D. in Human-Centered Computing, *Georgia Institute of Technology*

Expected May 2024

School of Interactive Computing, College of Computing

Atlanta, GA

Advisor: Alex Endert

B.S. in Physics, *Stevens Institute of Technology*

May 2020

Department of Physics, Schaefer School of Engineering & Science

Hoboken, NJ

GPA: 3.98/4.00, Minors: Mathematics, Computer Science

RESEARCH EXPERIENCE

Georgia Institute of Technology

Atlanta, GA

Graduate Research Assistant, advisor *Dr. Alex Endert*

Aug 2020—present

Developing visual analytics system to detect and mitigate cognitive bias during the analytic process.

- Funded in part by the National Science Foundation grant IIS-1813281.

Stevens Institute of Technology

Hoboken, NJ

Undergraduate Research Assistant, advisors *Dr. Aron Lindberg & Dr. Amir H. Gandomi*

May 2018—May 2020

Developed statistical model in Python for connecting evolutionary trajectories to performance outcomes in online communities.

- Funded in whole by Stevens' Pinnacle Scholars Program from May to Aug 2018.
- Deployed spiders to automate web scraping of structured data using Scrapy for Python.
- Filtered and merged semi-structured JSON data into clean, structured tabular data for querying.
- Developed distance matrices on unevenly spaced time series data for clustering using Dynamic Time Warping.
- Applied hierarchical clustering techniques on structured distance matrices using Scikit-Learn for Python.
- Performed cluster analysis of agglomerative clustering methods using pandas for Python.
- Evaluated model feasibility in response to cluster analysis results to further the research goals.
- Built bag-of-words model to leverage new insights gained from cluster analysis using Scikit-Learn for Python.

Katholieke Universiteit Leuven

Leuven, Belgium

Undergraduate Research Internship, advisors *Dr. Lino da Costa Pereira & Tiago de Lemos Lima*

May—Aug 2017

Developed management software in Python for simulation of ion channeling in single crystals, to be used in ion beam analysis of topological materials.

- Funded in whole by Katholieke Universiteit Leuven and Stevens' Pinnacle Scholars Program.
- Created graphical user interface to facilitate environment run-time setup and queuing simulations in Python.
- Utilized subprocess management in Python to allow simulations to run faster in parallel.
- Built data collection pipeline in Python to merge and filter simulation data for post-processing and analysis.
- Analyzed simulated scattering patterns in nanoscale thin film topological insulators to improve simulation setup.
- Implemented modularity in end-user customization to improve distributiveness across departments.

INDUSTRY EXPERIENCE

New York Life Insurance Company

New York, NY

Machine Learning Operations Intern, manager *Paul Janis*

May—Aug 2020

Engineered multiple feature extraction pipelines interfaced by Domino platform and integrated with existing Hadoop infrastructure to produce model monitoring metric reports for stakeholders and internal data science team.

- Facilitated communications between stakeholders and internal team when designing reports.
- Automated ingestion of monitoring data using existing Hadoop architecture integrated with Domino API.

- Utilized HTML and JS in creating a cross-browser deliverable for stakeholders with dynamic data views.
- Designed test case automation during end-to-end testing of Domino models going live in production.
- Built decryption algorithm in PySpark integrated with HiveQL to automate ingestion of EDM data.

Data Platform Engineering Intern, manager *Paul Janis*

May—Aug 2019

Built various scalable programs and data-handling procedures for multiple teams to leverage complex, low-level data lake tools with efficient, cost-effective, and easy-to-use overlays.

- Built self-service data-loading and task-scheduling program in Python and PySpark to empower less technical teams to perform simple data governance within their own department.
- Automated resource reporting tasks across distributed Hadoop nodes to save time manually reviewing logs.
- Curated internal self-help courses on SQL, HiveQL and Oracle shared across the company to provide access and tools for teams looking to utilize new data storage solutions.
- Optimized data acquisition in new systems by automating transformation of SQL queries from Oracle to Hive.
- Collaborated with senior team to write DB schemas and develop ER diagrams for future projects.
- Learned Apache suite of Hive, Hadoop, Spark to work effectively in a MapReduce server environment.

AWARDS and HONORS

- **President's Fellowship**, *Georgia Institute of Technology* 2020
Yearly stipend renewable for 3 additional terms; selected upon admission from top 10% of applicant pool.
- **Alfred M. Mayer Prize**, *Department of Physics, Stevens Institute of Technology* 2020
Cash prize awarded to senior ranked first in all physics courses taken during undergraduate career.
- **Sigma Pi Sigma Physics Honor Society**, *American Institute of Physics* 2019
Inducted as a Lifetime Member.
- **Distinguished Teaching Assistant**, *Stevens Institute of Technology* 2018
Awarded to student faculty member nominated for creating outstanding classroom environment.
- **Presidential Scholarship**, *Stevens Institute of Technology* 2016—2020
Four-year, half-tuition award; selected for academic excellence in high school.

PUBLICATIONS

Workshop Papers

1. **Coscia, A.**, Chau, D., Endert, A. *Toward a Bias-Aware Future for Mixed-Initiative Visual Analytics*. Workshop on TRust and EXpertise in Visual Analytics (TREX, at VIS'20), 2020.

PRESENTATIONS

Poster Presentations

1. **Coscia, A.** *Correlating Long-Term Innovation with Success in Career Progression*, Business Intelligence & Analytics (BI&A) Corporate Networking Event, Hoboken, NJ, November 2018.
2. **Coscia, A.** *Correlating Long-Term Innovation with Success in Career Progression*, Pinnacle Scholar Summer Research Poster Session, Hoboken, NJ, November 2018.

TEACHING and MENTORING

Stevens Institute of Technology

Hoboken, NJ

Course Assistant, Honors Electricity & Magnetism, instructor *Dr. Christopher Search*

2018—2020

Assisted professor with grading, exam reviews, in-class worksheets, and testing material preparation.

- Hosted school-sponsored exam review sessions using self-created material prepared before each exam.
- Facilitated weekly in-class worksheet assignments by providing feedback to students while they work.
- Graded weekly homework and in-class worksheets as well as periodic exams.

Course Assistant, Electricity & Magnetism, instructor *Robert Pastore* 2018—2020
 Assisted lecturer by running exam reviews each semester for an average class size of 200 students.

- Prepared detailed note sheets and supplemental material to help different majors with problem-solving.

Teaching Assistant, Introduction to Scientific Computing, instructor *Dr. Dimitrios Damopoulos* 2017—2020
 Instructed ~25 students using weekly MATLAB assignments designed to teach basic scientific computing paradigms.

- Ran independent lab sessions every Friday to meet with students and instruct on course material.
- Assisted professor in creating material for the course including exams, homework, projects, and lab assignments.
- Held office hours to provide personalized feedback and facilitate self-study habits.
- Adjusted teaching style to accommodate introductory skill sets and varied backgrounds in material exposure.

Mentor, Pinnacle Scholar Peer Advisor Program, advisor *Stephanie Riker* 2017—2019
 Mentored 4-6 Pinnacle Scholar freshman representing different majors each academic year.

- Provided access to campus resources and a safe space in order to promote well-being during transition to college.
- Collected resources to help advisees pursue academic, industry, recreational and volunteer opportunities at Stevens, in the community, and internationally.

GRANTS and FUNDING

- **Pinnacle Scholar Summer Institutional Research Program** Summer 2018
 \$5000 stipend, Stevens Institute of Technology, 10-week program May-Aug
- **International Summer Abroad Internship Program** Summer 2017
 €3000 stipend, Department of Physics and Astronomy, Katholieke Universiteit Leuven
 \$5000 stipend, Pinnacle Scholars Program, Stevens Institute of Technology, 10-week program, May-Aug

PROFESSIONAL ASSOCIATIONS

- **Sigma Pi Sigma Physics Honor Society**, Lifetime Member April 2019
- **American Physical Society**, General Member Fall 2016

COMMUNITY INVOLVEMENT

Stevens Institute of Technology Hoboken, NJ
Co-panelist, “Applying to Ph.D. Programs”, organizer *Alida McKee* Fall 2020
 Shared Ph.D. application experiences for Stevens’ Pinnacle and Clark Scholars of all years.

- Other co-panelist: Kaitlin Gili, PhD in Physics, Oxford University, starting Jan. 2021

Treasurer, Society of Physics Students, advisor *Dr. Edward Whittaker* 2017—2020
 Responsible for organization budget and event planning on a semesterly basis.

- Defended requests for each semesterly budget in the range of \$2000 to \$5000, used to provide lectures, research colloquiums and scheduling help for all undergraduate physics majors.
- Participated in organization-led outreach programs in the Hoboken Grade Schools both on and off-campus.

SKILLS and TECHNIQUES

- **Data Acquisition (Web Scraping)**
 Python (Scrapy, BeautifulSoup, JSON), ETL Pipelines using PySpark/HDFS/Hive and Oracle/Java
- **Data Analysis Software, Packages, Methods**
 Python (pandas, matplotlib, NumPy, SciPy, scikit-learn, TensorFlow), PySpark, R (ggplot2), MATLAB, Time Series Analysis, Bag of Words Document Modeling, Clustering/Cluster Analysis
- **Database Management Systems and Pipelines**
 Oracle (Database/SQL), Apache Spark (PySpark), Apache Hive (HiveQL), Hadoop/HDFS, MySQL

- **Programming Languages and Development Environments**

Python, R, MATLAB, bash, Java, C/C++, GitHub, Jupyter Notebook, Windows, Linux (Ubuntu, RedHat)

- **Numerical Methods**

Interpolation, polynomial approximation, integration, differentiation, solving IVPs, direct and iterative methods of solving linear and non-linear systems of equations in MATLAB.

RELEVANT COURSEWORK

Computer Science: Discrete Structures, Data Structures, Database Management Systems, Algorithms, Creative Problem Solving and Team Programming

Mathematics: Differential Equations, Multivariable Calculus, Linear Algebra, Advanced Calculus (Real Analysis)

Statistics: Probability and Statistics, Intermediate Statistics

Math Methods + Applications: Math Methods for Physicists I & II, Thermal & Statistical Physics, Computational Physics (Numerical Methods + Machine Learning)

Physics: Electromagnetism, Quantum Mechanics I & II, Solid State Physics, Physics of Biological Systems