

Adam J. Coscia – Curriculum Vitae

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EDUCATION

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

School of Interactive Computing, College of Computing

Advisor: Alex Endert

Expected May 2024

Atlanta, GA

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

Department of Physics, Schaefer School of Engineering & Science

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

May 2020

Hoboken, NJ

RESEARCH EXPERIENCE

Stevens Institute of Technology

Hoboken, NJ

Research Internship, 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 by the sponsoring institution from May 2018 – 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

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 by the sponsoring institution and Stevens Institute of Technology for the duration of the program.
- Created graphical user interface to facilitate environment run-time setup and queueing 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 Engineer, 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

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

GRANTS and FUNDING

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| • Pinnacle Scholar Summer Institutional Research Program | 2018 |
| \$5000 stipend, Stevens Institute of Technology, 10-week program May-Aug | |
| • International Summer Abroad Internship Program | 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 | |

CONFERENCES

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| • AWS Summit New York , New York NY | 2019 |
| Jul 11 – Visiting employee on behalf of New York Life Insurance Company | |
| • American Physical Society – March Meeting , Boston MA | 2019 |
| Mar 4-8 – Visiting scholar on behalf of Department of Physics, Stevens Institute of Technology | |
| • Business Intelligence & Analytics Corporate Networking Event , Hoboken, NJ | 2018 |
| Nov 27 – <i>Correlating Long-Term Innovation with Success in Career Progression</i> | |
| • Pinnacle Scholar Summer Research Poster Session , Hoboken, NJ | 2018 |
| Nov 15 – <i>Correlating Long-Term Innovation with Success in Career Progression</i> | |
| • American Physical Society – April Meeting , Washington D.C. | 2017 |
| Jan 28-31 – Visiting scholar on behalf of Department of Physics, Stevens Institute of Technology | |

COURSE ASSISTANTSHIPS**Stevens Institute of Technology**

Hoboken, NJ

CS 105 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.

PEP 112S Electricity & Magnetism, Honors Section, 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.

PEP 112 Electricity & Magnetism, Regular Section, 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.

LEADERSHIP EXPERIENCE

Stevens Institute of Technology Hoboken, NJ

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.

Pinnacle Scholar Peer Advisor, 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.

Stevens LEADS Program Graduate, director *Hector Perea* Fall 2017

Completed Leadership Education and Diversity Seminar program for student organization leaders.

- Developed interpersonal and organization skills through interactive lessons in teambuilding, management, organization and execution of plans.
- Gained valuable diversity education focused on inclusion and cultural awareness through talks given by industry professionals working in diversity education programs.

SKILLS and TECHNIQUES

- **Data Acquisition and 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

PROFESSIONAL SOCIETIES

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| • Sigma Pi Sigma Physics Honor Society , Lifetime Member | 2019 |
| • American Physical Society , General Member | 2016 |