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
GPA: 4.00/4.00 – Advisor: Dr. 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

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 hierarchal 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

- **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.

GRANTS and FUNDING

- **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

- **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 – *Correlating Long-Term Innovation with Success in Career Progression*
- **Pinnacle Scholar Summer Research Poster Session**, Hoboken, NJ 2018
  Nov 15 – *Correlating Long-Term Innovation with Success in Career Progression*
- **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

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