Adam J. Coscia – Curriculum Vitae

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EDUCATION

<u>Ph.D. in Human-Centered Computing</u>, **Georgia Institute of Technology**   Atlanta, GA
  GPA: 4.00 / 4.00 ● Advised by **Alex Endert**   Expected 2025

<u>B.S. in Physics</u>, **Stevens Institute of Technology**   Hoboken, NJ
  GPA: 3.98 / 4.00 ● Minors in Mathematics and Computer Science   May 2020

RESEARCH EXPERIENCE

<u>Georgia Institute of Technology</u>   Atlanta, GA

Graduate Research Assistant ● Advisor: **Alex Endert**   2020—present
- Developing interactive visual analytics tools that help people make sense of data by combining information visualization, machine learning, data mining, and human-computer interaction.
- Member of the Visual Analytics Lab.

<u>NASA Jet Propulsion Laboratory</u>   Pasadena, CA

Machine Learning Lead ● Advisor: **Scott Davidoff**   Summer 2023
- Developed automated science planning capabilities for planetary mission plans to support multi-instrument and team-driven science using a novel demonstration paradigm.
- Joint work between NASA Jet Propulsion Laboratory and Georgia Tech.
- Funded by JPL Summer Internship Program.

Computer Science Lead ● Advisor: **Scott Davidoff**   Summer 2021
- Built interactive data visualization combining linked 2D maps and 3D visualizations of taxa and geochemical values in sediment cores collected from the sea floor.
- Joint work between NASA Jet Propulsion Laboratory, Caltech, and the ArtCenter College of Design.
- Funded by JPL Summer Internship Program.

<u>Stevens Institute of Technology</u>   Hoboken, NJ

Research Assistant ● Advisors: **Aron Lindberg**, **Amir Gandomi**   2018—2020
- Developed statistical model in Python for connecting evolutionary trajectories of digital artifacts to performance outcomes in online communities.
- Funded by Stevens Pinnacle Scholars Program.

<u>Katholieke Universiteit Leuven</u>   Leuven, Belgium

Visiting Research Scholar ● Advisors: **Lino da Costa Pereira**, **Tiago Abel de Lemos Lima**   Summer 2017
- Built data visualization interface in Python for managing simulations of ion channeling in single crystals, to be used in ion beam analysis of topological materials.
- Funded by both Katholieke Universiteit Leuven and Stevens Pinnacle Scholars Program.

INDUSTRY EXPERIENCE

New York Life Insurance Company   New York, NY

Machine Learning / Operations Intern ● Supervisor: **Paul Janis**   Summer 2020
- Engineered multiple feature extraction pipelines interfaced by Domino platform and integrated with existing Hadoop infrastructure.
- Produced model monitoring metric reports for stakeholders and internal data science team.

Data Platform Engineering Intern ● Supervisor: **Paul Janis**   Summer 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 interfaces.

AWARDS and HONORS

College of Computing (CoC) Poster Award, **Georgia Institute of Technology**   2023
- CRIDC Poster Competition winner: "KnowledgeVIS: Visualizing What Language Models Have Learned."

Executive Vice President for Research (EVPR) Poster Award, **Georgia Institute of Technology**   2021
- CRIDC Poster Competition winner: "Lumos: Increasing Awareness of Biases during Visual Data Analysis."

President's Fellowship, **Georgia Institute of Technology**   2020
- Four-year semesterly stipend award; selected upon admission from top 10% of applicant pool.

Alfred M. Mayer Prize, **Stevens Institute of Technology**   2020
- 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
- Four-year, half-tuition award; selected for academic excellence in high school.

PUBLICATIONS and PRESENTATIONS

Conference Proceedings and Journal Articles

1. Coscia, A., Holmes, L., Morris, W., Choi, J. S., Crossley, S., Endert, A. **iScore: Visual Analytics for Interpreting How Language Models Automatically Score Summaries.** *ACM Conference on Intelligent User Interfaces (ACM IUI). Under review.*

2. Coscia, A., Sapers, H. M., Deutsch, N., Khurana, M., Magyar, J. S., Parra, S. A., Utter, D. R., Wipfler, R. L., Caress, D. W., Martin, E. J., Paduan, J. B., Hendrie, M., Lombeyda, S., Mushkin, H., Endert, A., Davidoff, S., Orphan, V. J. **DeepSee: Multidimensional Visualizations of Seabed Ecosystems.** *ACM Conference on Human Factors in Computing Systems (CHI). Under review.*

3. Guo, G., Kumar, A. M. S., Gupta, A., Coscia, A., MacLellan, C., Endert, A. **Visualizing the Provenance of Intelligent Tutor Interactions towards Responsive Pedagogy.** *ACM Conference on Human Factors in Computing Systems (CHI). Under review.*

4. Coscia, A., Endert, A. **KnowledgeVIS: Interpreting Language Models by Comparing Fill-in-the-Blank Prompts.** *IEEE Transactions on Visualization and Computer Graphics (TVCG). Under review.*

5. Coscia, A., Suh, A., Chang, R., Endert, A. **Preliminary Guidelines for Combining Data Integration and Visual Data Analysis.** *IEEE Transactions on Visualization and Computer Graphics (TVCG). Under review.*

6. Narechania, A., <u>Coscia, A.</u>, Wall, E., Endert, A. **Lumos: Increasing Awareness of Analytic Behavior during Visual Data Analysis**. *IEEE Transactions on Visualization and Computer Graphics (TVCG), 2022. Proc. IEEE VIS, 2021.*

7. Wall, E., Narechania, A., <u>Coscia, A.</u>, Paden, J., Endert, A. **Left, Right, and Gender: Exploring Interaction Traces to Mitigate Human Biases.** *IEEE Transactions on Visualization and Computer Graphics (TVCG), 2022. Proc. IEEE VIS, 2021.*

Workshop Papers

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

Posters

1. <u>Coscia, A.</u>, Holmes, L., Morris, W., Choi, J. S., Crossley, S., Endert, A. **iScore: Visual Analytics for Interpreting How Language Models Automatically Score Summaries.** *C21U Annual Symposium on Generative Futures: Revolutionizing Learning with Artificial Intelligence, Atlanta, GA, September 2023.*

2. <u>Coscia, A.</u>, Endert, A. **KnowledgeVIS: Visualizing What Language Models Have Learned.** *Career, Research, and Innovation Development Conference (CRIDC), Atlanta, GA, March 2023.*

3. Narechania, A., <u>Coscia, A.</u>, Wall, E., Endert, A. **Lumos: Increasing Awareness of Biases during Visual Data Analysis.** *Career, Research, and Innovation Development Conference (CRIDC), Atlanta, GA, March 2021.*

4. <u>Coscia, A.</u> **Correlating Long-Term Innovation with Success in Career Progression.** *Business Intelligence & Analytics (BI&A) Corporate Networking Event, Hoboken, NJ, November 2018.*

5. <u>Coscia, A.</u> **Correlating Long-Term Innovation with Success in Career Progression.** *Pinnacle Scholar Summer Research Poster Session, Hoboken, NJ, November 2018.*

TEACHING and MENTORING

<u>Georgia Institute of Technology</u>   Atlanta, GA

Graduate Teaching Assistant ● **Data Visualization Principles (CS 6730)** ● Instructor: **Alex Endert**   Fall 2022
- Assisted professor with grading, exam reviews, in-class worksheets, and testing material preparation.

<u>Stevens Institute of Technology</u>   Hoboken, NJ

Course Assistant ● **Honors Electricity & Magnetism (PEP 112)** ● Instructor: **Christopher Search**   2018—2020
- Assisted professor with grading, exam reviews, in-class worksheets, and testing material preparation.

Course Assistant ● **Electricity & Magnetism (PEP 112)** ● Instructor: **Robert Pastore**   2018—2020
- Assisted lecturer by running exam reviews each semester for an average class size of 200 students.

Teaching Assistant ● **Intro to Scientific Computing (CS 105)** ● Instructor: **Dimitrios Damopoulos**   2017—2020
- Instructed 15-25 students weekly via in-person labs using MATLAB assignments designed to teach basic scientific computing paradigms.
- Developed course material with instructor supervision.

Mentor ● **Pinnacle Scholar Peer Advisor Program**   2017—2019
- Mentored 4-6 Pinnacle Scholar freshman representing different majors each academic year. Provided guidance on internships, classes, international experiences, campus resources; took students on excursions into Hoboken.

GRANTS and FUNDING

<u>Stevens Institute of Technology</u>   Hoboken, NJ

Pinnacle Scholar Summer Institutional Research Program   Summer 2018
- $5000 stipend from *Stevens Institute of Technology*

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*

SERVICE and ASSOCIATIONS

Reviewer

ACM Conference on Human Factors in Computing Systems (**CHI**)	2023
IEEE VIS Conference (**VIS**)	2022, 2023
EuroVis Conference (**EuroVis**)	2023
IEEE Transactions on Visualization and Graphics (**TVCG**)	2022, 2023

Member

Sigma Pi Sigma (**SPS**) Physics Honor Society	2019—present
American Physical Society (**APS**)	2016—2020

COMMUNITY ENGAGEMENT

Encouraging Women Across All Borders (EWAAB)   New York, NY

Mentor ● **Beyond Mentorship Program**   Fall 2022
- Connect one-on-one with students to discuss professional topics ranging from general professional advice, to applying for opportunities, to discovering new fields.

Stevens Institute of Technology   Hoboken, NJ

Co-panelist ● **Panel: "Applying to Ph.D. Programs"**   Fall 2020
- Shared Ph.D. application experiences with undergraduate Stevens' Pinnacle and Clark Scholars.

Treasurer ● **Society of Physics Students** ● Supervisor: **Edward Whittaker**   2017—2020
- Requested and defended semesterly budget between $2000 and $5000 .
- Planned lectures, research colloquiums, scheduling events for physics majors.
- Led organization outreach programs in the Hoboken Grade Schools, both on and off-campus.

SKILLS and TECHNIQUES

Data Visualization
- **Tools**   Java/TypeScript, Python, R, Tableau, MATLAB
- **Libraries**   D3.js, Three.js, matplotlib, seaborn, ggplot2

Machine Learning (ML) / Modeling
- **Tools**   Python, R
- **Libraries**   pandas, NumPy, SciPy, scikit-learn, py-torch, transformers

Web Development
- **Tools**   Vue.js, React, Angular, Node.js
- **Libraries**   jQuery, Bootstrap, D3.js, Socket.IO / Express / Axios

Data Acquisition and Warehousing
- **Tools**   SQL, Python, Apache Hive / Hadoop / Spark, Oracle, Redis, AWS S3
- **Libraries**   Scrapy, BeautifulSoup

Other

- **Tools**   Git, Jupyter Notebook, Visual Studio Code, Java, C/C++

RELEVANT COURSEWORK

<u>Georgia Institute of Technology</u>   Atlanta, GA

Human-Computer Interaction
- Principles of User Interface Software *(CS 6456)*
- Qualitative Methods for Design of Human Computer Interaction *(CS 6456)*
- Information Visualization *(CS 7450)*

Cognitive Science
- Introduction to Cognitive Science *(CS 6795)*

<u>Stevens Institute of Technology</u>   Hoboken, NJ

Computer Science
- Discrete Mathematics *(CS 135)*
- Data Structures *(CS 284)*
- Algorithms *(CS 385)*
- Creative Problem Solving and Team Programming *(CS 370)*
- Database Management Systems *(CS 442)*

Mathematics
- Differential Equations *(MA 221)*
- Multivariable Calculus *(MA 227)*
- Linear Algebra *(MA 232)*
- Advanced Calculus (Real Analysis) *(MA 547)*

Statistics
- Probability and Statistics *(MA 222)*
- Intermediate Statistics *(MA 331)*

Math Methods / Applications
- Mathematical Methods for Physicists I & II (Tensors, Fluids, Dynamics) *(PEP 527 & 528)*
- Computational Physics (Numerical Methods, Machine Learning) *(PEP 520)*