

# Adam J. Coscia – Curriculum Vitae

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## EDUCATION

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### Ph.D. in Human-Centered Computing

Georgia Institute of Technology

Atlanta, GA

Expected May 2026

Dissertation: Visual Analytics for Trustworthy Large Language Models in Education

Advisor: Alex Endert

Committee: Alex Endert, Duen Horng (Polo) Chau, Cindy Bearfield-Xiong, Yalong Yang, Scott Crossley

GPA: 4.00/4.00

### B.S. in Physics

Stevens Institute of Technology

Hoboken, NJ

May 2020

Minors: Mathematics, Computer Science

GPA: 3.98/4.00, Pinnacle Scholars program, Graduated top (#1) in physics class of 2020

## RESEARCH EXPERIENCE

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### Georgia Institute of Technology

Graduate Research Assistant | *Visual Analytics Lab*

Atlanta, GA

2020–present

- Advisor: Alex Endert
- Developing interactive visual analytics tools that help people make sense of data by combining information visualization, machine learning, and human-computer interaction.

### Adobe Research

Machine Learning Research Lead | *AI Experiences Lab*

San Jose, CA

Summer 2024

- Advisors: Shunan Guo, Eunye Koh
- Built a novel chat interface large language models (LLMs) to improve sensemaking of conversational LLM responses for everyday users using LLM-powered Adobe products.

### NASA Jet Propulsion Laboratory (JPL)

Machine Learning Research Lead | *Human-Interfaces Group*

Pasadena, CA

Summer 2023

- Advisors: Scott Davidoff, Tiago Vaquero
- Developed automated science planning capabilities for planetary missions to support multi-instrument and team-driven science using a novel demonstration paradigm.

Computer Science Lead | *Data to Discovery*

Summer 2021

- Advisors: Scott Davidoff, Santiago Lombeyda, Hillary Mushkin, Maggie Hendrie
- Built interactive data visualization combining linked 2D maps and 3D visualizations of taxa and geochemical values in sediment cores collected from the sea floor.

### Stevens Institute of Technology

Research Assistant | *Information Systems and Analytics*

Hoboken, NJ

2018–2020

- Advisors: Aron Lindberg, Amir Gandomi
- Developed statistical model in Python for connecting evolutionary trajectories of digital artifacts to performance outcomes in online communities.

## Katholieke Universiteit Leuven

Leuven, Belgium

Visiting Research Scholar | *Department of Physics and Astronomy*

Summer 2017

- Advisors: Lino da Costa Pereira, Tiago Abel de Lemos Lima
- 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.

## INDUSTRY EXPERIENCE

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### New York Life Insurance Company

New York, NY

Machine Learning / Operations Intern | *Center for Data Science and Artificial Intelligence*

Summer 2020

- Supervisor: Paul Janis
- 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 | *Center for Data Science and Analytics (CDSA)*

Summer 2019

- Supervisor: Paul Janis
- 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

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### Best Poster “College of Computing” Award at CRIDC 2023

2023

- For: “KnowledgeVIS: Visualizing What Language Models Have Learned”

### Best Poster “Executive Vice President for Research” Award at CRIDC 2021

2021

- For: “Lumos: Increasing Awareness of Biases during Visual Data Analysis”

### President’s Fellowship at Georgia Tech

2020

- Four-year semesterly stipend award; selected upon admission from top 10% of applicant pool.

### Alfred M. Mayer Prize at Stevens Institute of Technology

2020

- Given to senior ranked first in all physics courses taken during undergraduate career.

### Inducted into Sigma Pi Sigma Physics Honor Society

2019

- Inducted as a lifetime member by the American Institute of Physics

### Distinguished Teaching Assistant at Stevens Institute of Technology

2018

- Given to student faculty member nominated for creating outstanding classroom environment.

### Presidential Scholarship at Stevens Institute of Technology

2016

- Four-year, half-tuition award; selected for academic excellence in high school.

## PUBLICATIONS and PRESENTATIONS

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### Journal Articles

#### 1. KnowledgeVIS: Interpreting Language Models by Comparing Fill-in-the-Blank Prompts

Adam Coscia and Alex Endert

*IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 2024

Presented at IEEE Visualization Conference (*VIS*), St. Pete Beach, Florida, USA, 2024

## 2. **Preliminary Guidelines for Combining Data Integration and Visual Data Analysis**

Adam Coscia, Ashley Suh, Remco Chang, and Alex Endert

*IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 2024

*Presented at IEEE Visualization Conference (VIS)*, St. Pete Beach, Florida, USA, 2024

## Conference Proceedings

### 1. **Visualizing the Provenance of Intelligent Tutor Interactions towards Responsive Pedagogy**

Grace Guo, Aishwarya Mudgal Sunil Kumar, Adit Gupta, Adam Coscia, Chris MacLellan, and Alex Endert

*International Conference on Advanced Visual Interfaces (AVI)*, Arenzano (Genoa), Italy, 2024

### 2. **DeepSee: Multidimensional Visualizations of Seabed Ecosystems**

Adam Coscia, Haley M. Sapers, Noah Deutsch, Malika Khurana, John S. Magyar, Sergio A. Parra, Daniel R. Utter, Rebecca L. Wipfler, David W. Caress, Eric J. Martin, Jennifer B. Paduan, Maggie Hendrie, Santiago Lombeyda, Hillary Mushkin, Alex Endert, Scott Davidoff, and Victoria J. Orphan

*ACM Conference on Human Factors in Computing Systems (CHI)*, Honolulu, Hawai'i, USA, 2024

### 3. **iScore: Visual Analytics for Interpreting How Language Models Automatically Score Summaries**

Adam Coscia, Langdon Holmes, Wesley Morris, Joon Suh Choi, Scott Crossley, and Alex Endert

*ACM Conference on Intelligent User Interfaces (IUI)*, Greenville, South Carolina, USA, 2024

### 4. **Lumos: Increasing Awareness of Analytic Behavior during Visual Data Analysis**

Arpit Narechania, Adam Coscia, Emily Wall, and Alex Endert

*IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 2022

*Proceedings of IEEE Visualization Conference (VIS)*, Virtual, 2021

### 5. **Left, Right, and Gender: Exploring Interaction Traces to Mitigate Human Biases**

Emily Wall, Arpit Narechania, Adam Coscia, Jamal Paden, and Alex Endert

*IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 2022

*Proceedings of IEEE Visualization Conference (VIS)*, Virtual, 2021

## Workshop Papers

### 1. **Toward a Bias-Aware Future for Mixed-Initiative Visual Analytics**

Adam Coscia, Duen Horng (Polo) Chau, and Alex Endert

*Workshop on TRust and EXpertise in Visual Analytics (TREX)*

*IEEE Visualization Conference (VIS)*, Virtual, 2020

## Posters

### 1. **iScore: Visual Analytics for Interpreting How Language Models Automatically Score Summaries**

Adam Coscia, Langdon Holmes, Wesley Morris, Joon Suh Choi, Scott Crossley, and Alex Endert

*Career, Research, and Innovation Development Conference (CRIDC)*, Atlanta, GA, USA, 2024

### 2. **iScore: Visual Analytics for Interpreting How Language Models Automatically Score Summaries**

Adam Coscia, Langdon Holmes, Wesley Morris, Joon Suh Choi, Scott Crossley, and Alex Endert

*C21U Annual Symposium on Generative Futures: Revolutionizing Learning with Artificial Intelligence*, Atlanta, GA, USA, 2023

### 3. **KnowledgeVIS: Visualizing What Language Models Have Learned**

Adam Coscia and Alex Endert

*Career, Research, and Innovation Development Conference (CRIDC)*, Atlanta, GA, USA, 2023

### 4. **Lumos: Increasing Awareness of Biases during Visual Data Analysis**

Arpit Narechania, Adam Coscia, Emily Wall, and Alex Endert

*Career, Research, and Innovation Development Conference (CRIDC)*, Atlanta, GA, USA, 2021

## 5. Correlating Long-Term Innovation with Success in Career Progression

Adam Coscia, Aron Lindberg

*Business Intelligence & Analytics (BI&A) Corporate Networking Event, Hoboken, NJ, USA, 2018*

## 6. Correlating Long-Term Innovation with Success in Career Progression

Adam Coscia, Aron Lindberg

*Pinnacle Scholar Summer Research Poster Session, Hoboken, NJ, USA, 2018*

## PRESS

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### 1. Visualization Tool Helps Oceanographers Predict Sediment Sample Hotspots

Jul 2024 | Nathan Deen @ School of Interactive Computing, Georgia Tech

<https://www.cc.gatech.edu/news/visualization-tool-helps-oceanographers-predict-sediment-sample-hotspots>

### 2. Adam Coscia Presents Visualizations for Interpreting Large Language Models at GUV Center Research Showcase

Apr 2023 | NSF AI Institute for Adult Learning in Online Education (AI-ALOE)

<https://aialoe.org/coscia-presents-visualizations-for-interpreting-large-language-models/>

### 3. DeepSEE: A Virtual Window Under the Waves

Nov 2021 | Serg Parra @ Schmidt Ocean Institute

<https://schmidtocan.org/cruise-log-post/deepsee-a-virtual-window-under-the-waves/>

## TEACHING

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### Georgia Institute of Technology

Atlanta, GA

Graduate Teaching Assistant | *Data Visualization Principles (CS 6730)*

Fall 2022

- Instructor: Alex Endert
- Assisted professor with grading, reviews, worksheets, and testing material preparation.

### Stevens Institute of Technology

Hoboken, NJ

Course Assistant | *Honors Electricity & Magnetism (PEP 112)*

2018–2020

- Instructor: Christopher Search
- Assisted professor with grading, reviews, worksheets, and testing material preparation.

Course Assistant | *Electricity & Magnetism (PEP 112)*

2018–2020

- Instructor: Robert Pastore
- Ran exam reviews each semester for an average class size of 200 students.

Teaching Assistant | *Intro to Scientific Computing (CS 105)*

2017–2020

- Instructor: Dimitrios Damopoulos
- Instructed 15-25 students weekly via in-person labs using MATLAB assignments designed to teach basic scientific computing paradigms. Developed course material with instructor.

## MENTORING

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### Georgia Institute of Technology

Atlanta, GA

Ben Klassen | *M.S. in Data Science + Analytics, Georgia Institute of Technology*

Fall 2024

- Developing novel visualization tools for helping students utilize LLMs in the classroom

## Encouraging Women Across All Borders (EWAAB)

New York, NY

Mentor | *Beyond Mentorship Program*

2022–2023

- Connected 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

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

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### Incorporating Knowledge Graphs and Large Language Models into Visual Text Analysis Tools

2024

Laboratory for Analytic Sciences (LAS) @ North Carolina State University

- Co-PI: Alex Endert
- One-year funding (full tuition + graduate stipend)

### Correlating Long-Term Innovation with Success in Career Progression

2018

Pinnacle Scholar Summer Institutional Research Program

- Co-PI: Aron Lindberg
- Funded \$5000 from Stevens Institute of Technology

### Managing Simulations of Ion Channeling in Single Crystals

2017

International Summer Abroad Internship Program

- Co-PI: Lino da Costa Pereira
- Funded €3000 from Department of Physics and Astronomy @ Katholieke Universiteit Leuven
- Funded \$5000 from Pinnacle Scholars Program @ Stevens Institute of Technology

## SERVICE and ASSOCIATIONS

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### Reviewer

IEEE VIS Conference (VIS)

2022, 2023, 2024

IEEE Transactions on Visualization and Graphics (TVCG)

2022

EuroVis Conference (EuroVis)

2023, 2024

ACM Conference on Human Factors in Computing Systems (CHI)

2024

ACM Transactions on Interactive Intelligent Systems (TIIS)

2024

### Member

ACM + SIGCHI Member

2023–present

Sigma Pi Sigma (SPS) Physics Honor Society

2019–present

American Physical Society (APS)

2016–2020

## COMMUNITY ENGAGEMENT

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### Stevens Institute of Technology

Hoboken, NJ

#### Co-panelist | “Applying to Ph.D. Programs”

Fall 2020

- Shared Ph.D. application experience with undergraduate Stevens' Pinnacle and Clark Scholars

#### Treasurer | *Society of Physics Students*

2017–2020

- Supervisor: Edward Whittaker
- 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

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### 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

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### Georgia Institute of Technology

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)

### Stevens Institute of Technology

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)