**Ella Luedeke**  
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**EDUCATION**

**University of North Florida** — Jacksonville, FL *August 2023- Present*  
Bachelor of Science in Computer Science | Minor: Leadership

*Hicks Honors College | Honors in the Major* | Upsilon Pi Epsilon International Honors Society

*Study Abroad:* American College in Greece Summer 2024

**Expected Graduation**: May 2026 | **GPA**: 3.92

**RESEARCH EXPERIENCE**

**University of North Florida —** Jacksonville, FL*January 2025 – Present*

*Research Assistant*

* Developed large language model approach to analyze misconceptions in students' learning.
* Leveraged natural language processing techniques to identify common misunderstandings and provide targeted feedback to improve educational outcomes.
* Gained hands-on experience in machine learning and AI, contributing to research in STEM education.

**University of North Carolina at Charlotte —** Charlotte, NC *May 2025 – July 2025*

*NSF Research Fellow*

* Conducted research at an NSF-funded research site focused on cyber-physical attacks against power grid infrastructure.
* Developed novel educational cybersecurity activity for real-world power grid simulation platform
* Authored 12-page Systemization of Knowledge paper on exploit modeling via weird machines.
* Reverse-engineered MongoDB schema and built custom integration pipeline for legacy research system.

**University of Texas at Arlington —** Arlington, TX *March 2025 – May 2025*

*Volunteer Researcher*

* Researched at an NSF-funded research site focused on natural language processing for animal communications.
* Investigated linguistic properties of animal vocalizations through collecting and annotating multimedia communication data with machine learning and bioacoustics techniques.
* Developed AniVoice, an open-source platform designed to process, analyze, and transcribe animal sounds into phonetic symbols.

**PUBLICATIONS & PRESENTATIONS**

**Accepted**

* **Luedeke, E. et. al**, “Teaching Infrastructure Security Through Interactive Experiences.” The Colloquium Conference & Journal, Nov 2025.

**Under Review**

* **Luedeke, E et. al.** “Exploring the Feasibility of Detecting Physics Student Misconceptions Through Writing Assignments Using Large Language Models.” Submitted to the *National Conference of Undergraduate Research*, Sept 2025.

**Under Preparation**

* **Luedeke, E et. al.** “Exploring the Feasibility of Detecting Physics Student Misconceptions Through Writing Assignments Using Large Language Models.” To be submitted to EACL.

**Posters & Presentations**

* “Teaching Infrastructure Security Through Interactive Experiences.” *OUR Summer Research Symposium*, UNC Charlotte, July 2025.
* “Detecting Physics Student Misconceptions Through Writing Assignments by Utilizing Large Language Models.” *School of Computing Symposium*, UNF, April 2025. (Faculty & Staff Choice Award)
* “Detecting Physics Student Misconceptions Through Writing Assignments by Utilizing Large Language Models.” *SOARS Symposium*, UNF, April 2025.

### ****GRANTS & FELLOWSHIPS****

**OUR U-RSCA Grant *September 2025***  
University of North Florida

**NSF Research Experience for Undergraduates** **Fellowship**  ***May 2025***  
University of North Carolina at Charlotte

**Hicks Honors** **Fellowship**  ***August 2024***  
University of North Florida

### ****HONORS & AWARDS****

 UNF School of Computing Distinguished Service (2025)

 Faculty & Staff Choice Award for Oral Presentation, UNF (2025)

 Hicks Honors Luminary Award (2025)

 Upsilon Pi Epsilon International Honor Society for Computing (2025)

 Hicks Honors Merit Scholarship (2024–2026)

 Haskell Company Endowed Scholarship (2024–2025)

 Hicks Honors Study Abroad Scholarship (2024)

 Remarkable Futures Scholarship (2023–2025)

 UNF Presidential Diamond Award (2023–2026)

 Dan Stout Award for Excellence in Mathematics (2021)

### ****TEACHING & LEADERSHIP****

**CCEC Student Ambassador** — Jacksonville, FL  ***August 2024 – Present***  
University of North Florida

* Represent the School of Computing at prospective/admitted student events, providing insights into curriculum and research opportunities.
* Assist with organizing and facilitating departmental outreach initiatives to promote interest in computer science and related fields.

**Peer-Assisted Student Success Leader** — Jacksonville, FL  ***June 2024 – Present***  
University of North Florida

* Conduct weekly review sessions for students enrolled in Programming 1, covering key topics such as algorithms, syntax, and problem-solving techniques.
* Create a collaborative learning environment to reinforce course material and enhance student understanding.
* Guide students through programming challenges, encouraging engagement and independent thinking.

**Hicks Honors Colloquium Facilitator** — Jacksonville, FL ***June 2024 – Present***University of North Florida

* Lead students in the breakout session of the freshman honors colloquium course with co-facilitators.
* Facilitate discussions on complex societal issues, including identity, migration, and global cultures
* Provide mentorship and support to first-year honors students, fostering academic and personal growth.

**Club President** — Jacksonville, FL  ***May 2024 – Present***  
Women in Cybersecurity

* Coordinate with faculty members and business professionals to further the club's goals of enhancing campus involvement and technical experience.
* Lead chapter initiatives to promote cybersecurity awareness and inclusion among underrepresented groups.
* Grow club membership through recruitment by 200% since beginning term as president.

**CodeForAWhile Datathon Student Mentor** — Jacksonville, FL ***April 2025***University of North Florida

* Guided high school students in applying data science and machine learning to social good projects.
* Assisted teams in data preprocessing, exploratory data analysis, and model selection.
* Provided insights on real-world applications of data science in areas such as voter engagement and nonprofit financial stability.

**ArcGIS Liaison & Coordinator *August 2023 – December 2023*** Hicks Honors College

* Coordinated a service project to map local resources and services for refugees using ArcGIS.
* Designed and developed a comprehensive, user-friendly digital map to enhance accessibility for refugees.
* Demonstrated skills in GIS mapping, data visualization, and project coordination to support community integration efforts.

### ****PROFESSIONAL EXPERIENCE****

**Student Editor** — Jacksonville, FL ***April 2025 - Present***Florida Undergraduate Research Journal

* Reviewing and providing constructive feedback on undergraduate research manuscripts for the Florida Undergraduate Research Journal Vol. 5 (2026).
* Collaborate with faculty and peers to ensure clarity, accuracy, and academic integrity in publications.

### ****PROJECTS****

**Enphase Flask API Simulator  *July 2025***

* Created proof-of-concept attacks against solar gateway devices; developed both server-side applications and client-side exploits.
* <https://github.com/ellaluedeke/enphase_gateway_simulation/blob/main/README.md>

**LLM Misconception Analysis  *June 2024***

* Built proof-of-concept tool using large language models to classify student misconceptions in computer science education.
* <https://github.com/ellaluedeke/llm-student-misconceptions>

**SKILLS**

* **Programming Languages: Python, Java, C, C#, HTML/CSS**
* **Machine Learning: LLMs, NLP, data analytics (pandas, scikit-learn, matplotlib)**
* **Tools & Platforms: S QL, Github, Webflow, ArcGIS**