

# Chloe Geller

RESEARCH ASSISTANT

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## Education

### University of Central Florida

Aug 2018 - May 2022

B.S. in Computer Science, GPA: 3.8/4.0

Orlando, FL

- **Minors:** Mathematics, Intelligent Robotic Systems, & Cognitive Sciences
- **Relevant Courses:** Algorithms for ML, AI, Robotics, Robot Vision, Data Structures & Algorithms, OOP, AI for Game Programming

### Broward College

Aug 2016 - Jul 2018

A.A. in Biology with Highest Honors, GPA: 3.95/4.0

Davie, FL

## Experience

### Harvard University

Jun 2022 - present

Research Assistant | Computation, Cognition, & Development Lab

Cambridge, MA

### Harvard University

Sep 2021 - May 2022

Undergraduate Research Assistant | Computation, Cognition, & Development Lab

Cambridge, MA

- **Mentor:** Dr. Tomer Ullman
- Leading a research project on time allocation in explore-exploit decision-making contexts.
- Leading a research project exploring next-token generation probabilities of large language models (e.g., GPT-3, BERT, RoBERTa) in implausible, impossible, and inconceivable settings.
- Building human experiments in TypeScript using React and jsPsych frameworks.
- Collecting data using Prolific, psiTurk, and JATOS.
- Performing statistical analyses in Python using NumPy, Pandas and SciPy.

### Massachusetts Institute of Technology

Jun 2021 - Aug 2021

Summer Research Fellow | CBMM | Computation, Cognition, & Development Lab

Cambridge, MA

- **Mentor:** Dr. Tomer Ullman, summer research fellowship in the Center for Brains, Minds, and Machines (CBMM) at MIT.
- Assisted in developing a theory of representation grounded in Type Theory.
- Developed and implemented pilot experiments using jsPsych and psiTurk.

### University of Central Florida

Nov 2020 - May 2021

Undergraduate Research Assistant | Natural Language Processing Group

Orlando, FL

- **Mentor:** Dr. Fei Liu
- Co-developed a new dataset by annotating summaries that state-of-the-art abstractive summarization models generated.
- Contributed to the validation of a novel scoring mechanism that compares document edits, like those in the annotations above instead of traditional scoring metrics like ROUGE, BLEU, and MoverScore.
- Performed large-scale ETL and standardization on summarization datasets in Python to streamline training of summarization models.
- Wrote scripts in Bash to automate running the natural language summarization models.

## Skills

<b>Programming Languages</b>	Python, JavaScript/Node.js, TypeScript, C, C++, Julia
<b>Machine Learning Libraries</b>	PyTorch, TensorFlow, scikit-learn, OpenCV, Keras, Pandas, NumPy, SciPy, Dask
<b>Natural Language Processing</b>	NLTK, SpaCy, GPT-3, GPT-2, BERT, RoBERTa, PyROUGE, ScareBLEU, MoverScore
<b>Web Development Tools</b>	React.js, React Native, MDX, YAML, TOML, HTML, CSS, MongoDB, jQuery, Hugo (SSGs)
<b>Human Experiments</b>	psiTurk, jsPsych, Prolific, Heroku, Amazon Mechanical Turk, JATOS
<b>Data Visualization Tools</b>	Plotly, Matplotlib, Seaborn, D3.js, Plotly.js
<b>Reproducibility</b>	Docker, Git, GitHub, Perforce, Anaconda, pip
<b>Spoken Languages</b>	French ( <i>native</i> ), English ( <i>native</i> )

## Projects

### Measuring Collaboration Using Minecraft

Jan 2021 - Dec 2021

Course: Senior Design | Team Leader | Python, Java, & JavaScript

- Designed the experiment and collected player data in Minecraft using Java, AWS, and MongoDB.
- Analyzed group-centric play time, frequency, and game-play data in Python and JavaScript.
- Built the website's data visualization tools using D3.js and Plotly.

## 3D Visualization Tools & Time Series Analysis

Jan 2021 - May 2021

Course: Introductions to Robotics | Python

- Used NumPy and SciPy to perform time-series analysis on the HeapCraft dataset.
- Developed interactive 3D visualizations using Plotly.

## Practice Makes Perfect

Jan 2021 - May 2021

Course: Artificial Intelligence for Game Programming | Team Member | Unity & C++

- Built a 2D platformer in Unity that follows a character through a post-apocalyptic world.
- Game balance heavily leaned towards a rage game (one that's incredibly difficult but allows for progress through mastery).

## The StoryTeller

Aug 2020 - Dec 2020

Course: Robotic Systems | Team Member | Python & Arduino

- Fine-tuned GPT-2 using the dataset from Hierarchical Neural Story Generation (Fan et al., 2018) to generate stories.
- Used Google Cloud's Text-to-Speech API to generate waveforms for the robot to "read" stories.

## uKnight

Jan 2020 - May 2020

Course: Processes of Object-Oriented Programming | Team Leader | React Native & JavaScript

- Created a student companion app to help students during their journey at UCF with alpha-stage pair-matching, chat, and events using React Native.
- Integrated Google's Firebase to store user accounts and in-app messages
- Used Google's Firebase to store student log-ins and messages exchanged in the app.

## Knights Discounts

Aug 2018 - Dec 2018

Course: Technical Writing | JavaScript

- Built a website that reported daily UCF-local food, entertainment, and transportation student discounts.

## My Father's New Arm & Leg

Jan 2018 - present

Personal | Prostheses & AI

- Investigating how to build my father prostheses without them costing an arm and a leg.
- Interviewed during Microsoft Ignite 2019 about motivations, progress, and needed resources.

## Organizations

**New Founder & President**, Association for Computing Machinery (**ACM**) Student Chapter

Aug 2020 - May 2021

**President**, ACM - Women in Tech (**ACM-W**) Student Chapter

May 2020 - May 2021

**Vice President** Artificial Intelligence at UCF (**AI@UCF**)

May 2020 - May 2021

**Secretary, & Mentorship Program Director**, ACM-W

May 2019 - May 2020

**Communications Director**, AI@UCF

May 2019 - May 2020

**Member** ACM-W

Aug 2018 - May 2019

**Member** AI@UCF

Aug 2018 - May 2019

## Honors & Awards

Grant **Summer Research Fellowship**, MIT Center for Brains, Minds, & Machines

Summer 2021

Award **Founder's Day Award**, UCF College of Engineering & Computer Science

Spring 2021

Honor **Dean's List**, UCF College of Engineering & Computer Science

Multiple

Award **Diversity and Tech Student Ambassador**, MS Ignite, Microsoft

Fall 2020

Honor **President's List**, UCF College of Engineering & Computer Science

Fall 2020

Award **Diversity and Tech Student Ambassador**, MS Ignite, Microsoft

Fall 2019

Honor **Graduated with Highest Honors**, Broward College

Summer 2018

Honor **President's List**, Broward College

2016 - 2018

## Volunteering

### Tech 101

Aug 2015 - Jul 2019

Technical Support | YMCA

- Program created to help the elderly adapt to new technology, and help them incorporate it into their daily lives.
- Assisted elders with using various software on computers and cell phones, printers, and setting up smart watches, fridges, washers and dryers.