

**Kumiko Ueda**  
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<https://kumikohello.github.io/>  
Chicago, IL

## **EDUCATION & CERTIFICATES**

**The University of Chicago**, Chicago, IL

*B.A. in Cognitive Science (Specialization in Psychology and Computer Science)*, expected, June 2027

*B.S. in Computational and Applied Mathematics (Specialization in Machine Learning)*, expected, June 2027

**Tokyo Gakugei University Senior High School**, Tokyo, Japan

High School Diploma, March 2023

## **RESEARCH EXPERIENCE**

**Computational Affective and Social Neuroscience Lab, University of Chicago**

**Chicago, IL**

*Research Assistant, PI: Dr. Yuan Chang Leong*

*September 2024 – present*

Project 1: Effect of Anxiety on Encoded brain activity similarity (*ongoing*)

- Leading individual project to analyze whether higher anxiety in individuals or in events lead to dissimilarity in generalizable reconstruction of brain data from semantic data
- Trained an encoding model to encode semantics represented in the brain from movie transcripts
- Preprocessed and signal enhanced naturalistic fMRI data using fMRIPrep and NiLearn
- Correlated anxiety scores with brain data using Python

Project 2: Effect of valence and arousal on memory (*on hold*)

- Performed preprocessing and analyses of pupil dilation data using Python, R, and MATLAB
- Coded and conducted eye-tracking experiments using pupillometry
- Computed memory scores using semantic embeddings and cosine similarity
- Conducted statistical tests using a Bayesian mixed effects model in R

**Center for East Asian Studies, University of Chicago**

**Chicago, IL**

*Research Assistant, PI: Dr. Chelsea Foxwell*

*September 2024 – present*

- Interpreted Japanese poetry featured in illustrated books by Kitagawa Utamaro
- Obtained library materials on Japanese Art History for courses
- Translated and summarized an article on *Uozukushi* by Dr. Takahashi Akinori

**Department of Economics, University of Tokyo**

**Tokyo, Japan**

*Research Assistant, PI: Dr. Taisuke Nakata*

*June 2024 - August 2024*

- Conducted model analysis and data analysis on the relationship between the COVID-19 pandemic and the economy in Japan
- Created graphs on inflation for G7 countries using Python (matplotlib) using data from FRED
- Wrote two research papers on predicting medical demand during COVID-19 in Japan

**High School Research**

**Tokyo, Japan**

*Researcher*

*April 2020 - November 2022*

- Learned how to conduct research in freshman year
- Researched the characteristics of songs that were likely to become earworms, which are songs that get stuck in your head, in junior year

- Researched the characteristics of songs that can stop earworms, which I named “cure tunes,” in senior year

## **PRESENTATIONS**

### **University of Chicago, Biological Sciences Division Quantitative Biology Summer Fellowship Symposium, Chicago, October 2025**

- Presented my research on how pupil size predicts memory for emotionally charged events during narrative processing.

### **Japanese Psychological Association, Presentation battle for university and high school students, Tokyo, Japan, September 2022**

- Presented my research on earworms and “cure tunes” in English
- Was the only one who presented in English

### **Tokyo Gakugei University Senior High School, Presentation, Tokyo, Japan, April 2022**

- Presented my research on earworms in front of 800+ students and faculty
- Was one of the six out of 400 students to be chosen to present

### **Tokyo Gakugei University, National University Corporation, Presentation of SSH/SGH/WWL research results, Tokyo, Japan, February 2022**

- Presented my research on earworms in English

## **AWARDS AND GRANTS**

- 2026 University of Chicago Quad Summer Undergraduate Research Scholar (\$5,500)
- 2025 University of Chicago Biological Sciences Collegiate Division Quantitative Biology Summer Fellowship (\$5,500)

## **TECHNICAL PROJECTS**

### **Music Therapy for Alzheimer’s Disease, University of Chicago** *April 2026 – May 2026*

- Built a [website](#) exploring how music therapy could help Alzheimer’s patients remember
- Completed as a final project for NSCI 22600: Cognition and Overcoming its Limits

### **Uncertainty Awareness in Medical LLMs, University of Chicago** *February 2026 – March 2026*

- Investigated uncertainty estimation methods for medical question answering using the MedQA dataset
- Found that semantic uncertainty can serve as a useful indicator of unreliable predictions in medical question answering systems
- Completed as a final project for CMSC 25700: Natural Language Processing

### **Go Bot, University of Chicago** *February 2024 – March 2024*

- Built a Go Bot using Python
- Beat the Random Bot, which chose moves at random, by 100%
- Completed as a final project for CMSC 14200: Introduction to Computer Science II

## **OTHER EXPERIENCE**

### **Mindsapes, University of Chicago**

*Treasurer*

**Chicago, IL**

*September 2025 – present*

- Planned, organized, and ran academic talks by recruiting faculty speakers and coordinating events
- Kept track of finances for the cognitive science organization

**Japanese Student Association, University of Chicago**

*Secretary*

**Chicago, IL**  
*January 2023 – present*

- Helped sell Japanese snacks for fundraisers and organize study breaks
- Sent out emails and took notes during board meetings

**House Council, University of Chicago**

*Intramural Sports Representative*

**Chicago, IL**  
*September 2024 – June 2025*

- Signed up for Intramural Sports every quarter and recruit members

*Remote, Website Developer*

*December 2023*

- Made a website for a Professor at the University of Tokyo using HTML and CSS on Google Sites

**International Mathematical Olympiad**

*Guide*

**Chiba, Japan**  
*July 2023*

- Translated from Japanese to English and English to Japanese for the Turkish team

**SELECTED COURSEWORK**

CMSC 25700 Natural Language Processing  
COGS 20002 Cognitive Models  
NSCI 22600 Cognition and Overcoming its Limits  
PHIL 29906 Philosophy of Artificial Intelligence: Mind and Model  
PSYC 31900 The Neuroscience of Narratives  
STAT 24410 Statistical Theory and Methods Ia

**SKILLS & INTERESTS**

**Research Interests:** Brain Decoding, Emotions and Memory, Machine Learning

**Computer:** Proficient in Python, Microsoft Word, PowerPoint, and Excel

Experienced in C, R, MATLAB, TensorFlow, PyTorch, SciPy, Git and Google Sites

Familiar with Numpy, Pandas, JavaScript, HTML, CSS, SQL, and Web Development

**Neuroscience & Psychology:**

Software: Qualtrics

Hardware: SR Research Eyelink 1000/Portable Duo eyetracker

**Languages:** Fluent in English and Japanese