



## RESUME

# Jacob E. Chandran

SOFTWARE ENGINEER / APPLIED AI

## Software engineer building custom AI systems, from LLM fine-tuning to production deployment.

Six years across backend engineering at JPMorgan Chase and founding Eightmind LLC, with research roots in machine intelligence at Johns Hopkins APL and computational neuroscience at the Weizmann Institute.

## PROFESSIONAL EXPERIENCE

- 01 Eightmind LLC** Jan 2022 – Present  
Founder, Software Engineer
  - Founded a personal software company specializing in educational applications of AI and custom AI systems.
  - Fine-tuned large language models using parameter-efficient techniques including LoRA, QLoRA, DoRA and PEFT.
  - Designed, built and deployed custom AI systems end to end, from data preparation and model fine-tuning to production deployment.
- 02 JPMorgan Chase & Co.** June 2020 – Jan 2022  
Software Engineer · Wilmington, DE
  - Designed, built and maintained event-driven backend services using Apache Kafka and Python for real-time data streaming.
  - Developed front-end applications in ReactJS integrated with Python backend services.
  - Owned the full software development lifecycle: design, implementation, code review, testing and production deployment on Linux.
- 03 JPMorgan Chase & Co.** June 2019 – Aug 2019  
Machine Learning Intern, Software Engineer Program (SEP) · Wilmington, DE
  - Designed, coded and tested new software to create Natural Language Processing solutions in the Business Intelligence and Autolytics division.
  - Implemented an internal question answering service that converts user questions into SQL scripts; generated queries interface with the database to return text and graphical representations to the user.
  - Applied Natural Language Processing with TensorFlow to convert text to SQL, ReactJS for the user interface, and Flask for a web framework with endpoints accepting user input from the website.
  - Worked with distributed (multi-tiered) systems, algorithms, relational databases and object-oriented design, implemented in Java on Linux.

## CONTACT

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## EDUCATION

University of North Carolina at Chapel Hill  
B.S. Computer Science  
2017 – 2020

## TECHNICAL

### LANGUAGES

Python, Java, JavaScript, C, SQL

### AI / ML

LLM fine-tuning (LoRA, QLoRA, DoRA, PEFT),  
TensorFlow/Keras, scikit-learn, NLP

### SYSTEMS

Apache Kafka, ReactJS, Flask, MySQL / SQL Server, Linux, Git

## CERTIFICATION

Natural Language Processing, Coursera

## RESEARCH TOOLS

MATLAB, ImageJ,  
Keras/TensorFlow, Python  
scikit-learn, NLTK, spaCy,  
Gensim, regex, Jupyter,  
Pandas

## MACHINE LEARNING

Supervised, unsupervised and  
reinforcement learning

## NATURAL LANGUAGE PROCESSING

Language modelling, named  
entity recognition, information  
extraction

## AWARDS

### Best Research Paper

International Science Institute,  
Weizmann Institute of Science,  
2017

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## RESEARCH EXPERIENCE

### 04 Weizmann Institute of Science

July 2017

Computer Science Research Intern, International Science Institute · Israel

- Used MATLAB and ImageJ to map rod and cone photoreceptor structure in the mouse retina from two-photon calcium imaging data for the project '*Feature Extraction of retinal ganglion cells in the mouse retina using two-photon calcium imaging*'.
- Built MATLAB (Toolbox-3) simulations of retinal response to six visual stimuli, mapping receptive fields and temporal kinetics of retinal cells to compare cell subtypes.
- Developed MATLAB and ImageJ analysis pipelines to visualize cellular activity and segment retinal cell structure from microscopy images.
- Presented research findings and won the best research paper award.

### 05 Johns Hopkins University Applied Physics Laboratory

Sep 2015 – May 2017

Machine Intelligence Intern, ASPIRE Mentoring Program · Laurel, MD

- Trained in DeepLab for medical image segmentation and TensorFlow for deep convolutional neural networks, tuning CNN feature extraction to improve image classification accuracy.
- Installed and tested deep learning frameworks, DeepLab (on Caffe) for medical image segmentation, and TensorFlow and Keras for image classification to detect age-related macular degeneration.
- Completed computer vision project '*Effect of Visual Attributes on Classification Accuracy of Zero Shot Learning*'.
- Statistical machine learning tools: MATLAB, Keras/TensorFlow, Python scikit-learn, NLTK, spaCy, Gensim, regex.

## VOLUNTEER EXPERIENCE

### 06 Shanthi Bhavan Residential School for Poor/Orphans

Jul/Aug 2014, 2015, 2016

Volunteer Teacher, Math and Physics · India

- Taught 'untouchables' and economically disadvantaged students in grades 2-12 in Mathematics, Science, Music (Piano) and Basketball.
- Tutored and mentored students in grades 2-8 in Mathematics, Science, Music (Piano), Sports and extra-curricular activities (debates, seminars, spelling bee).
- Presented a seminar on Neural Networks to high school students.