

Akathian SANTHAKUMAR

HBSc. Computer Science and Neuroscience (Deep Learning)

akathian.com  github.com/Akathian  linkedin.com/in/akathian  (647)-882-7285  akathian.santhakumar@mail.utoronto.ca

KEY COMPETENCIES

Languages	Python, TypeScript, JavaScript, Java, Matlab, R, C, Shell Scripting, Haskell
Artificial Intelligence	ML/DL Frameworks (PyTorch, Tensorflow, Keras, NumPy, Scikit-learn), MLOps (AWS Sagemaker), Document AI (Neural Networks, LDA), Image AI (RBF), Classification (Naive Bayes, KNN, Random Forest), Clustering (K-Means, GMM), Regression
Developing Experience	Backend (Node.js, Flask), Database (SQL, NoSQL), Frontend (Angular, React.js)

EDUCATION

September 2017	HBSc, Double Major in Neuroscience, Computer Science, University of Toronto.
- December 2021	Supervised Research Project in Computational Modeling (Neural Networks) <ul style="list-style-type: none">> Supervisor: Dr. Blair Armstrong, Title: A neural network model of visual word recognition> Use a network simulator to simulate how the brain processes words versus non-words

EXPERIENCE

September 2021 Present	Deep Learning Research Programmer, UNIVERSITY OF TORONTO DEPT. OF PSYCHOLOGY, Toronto, ON Developing neural network models of how humans produce, comprehend, and understand language <ul style="list-style-type: none">> Researched and coded the python (PYLens) translation of the CLens neural network simulator implementation of Simple Recurrent Backpropagation Through Time (SRBPTT)> Analyzed and interpreted results of neurological computational models of language processing to evaluate performance and how well the model has simulated neurological systems <div>Python C PyTorch Research</div>
September 2021 Present	Machine Learning Engineer, 16 BIT, Toronto, ON Engineer, train, test and validate neural network model to infer bone density from x-ray images and survival predictions in COVID-19 patients <ul style="list-style-type: none">> Researched and implemented independantly DeepHit, COX, XGBoost, and DeepSurvivalMachine algorithms to COVID-19 patient data to predict clinical outcomes> Built a pipeline to run multiple experiments to obtain the model that could predict risk score the best <div>PyTorch XGBoost PCA Random Forest Survival Analysis TensorBoard conda docker numpy CUDA</div>
January 2021 August 2021	Software Developer, BIORENDER, Toronto, ON Focused on features, APIs and the database before working on user recommendations, A/B tests and data. <ul style="list-style-type: none">> Coded and A/B tested a scoring function to match over 6k users to field specific templates to investigate whether recommending templates to a user would increase their usage> Engineered, trained and tested document classifying and clustering algorithms to recommend templates most similar to the user's illustrations> Implemented the Flagsmith A/B testing platform, enabling over 25 team members to run A/B tests <div>React.js Node.js Python numpy scikit-learn Tensorflow MongoDB AWS Heroku TypeScript Git</div>
January 2019 Present	Web Developer & Tutor, THAYAHAN ARTS SCHOOL, Scarborough, ON Build and maintain the business' website for 100s of monthly visitors and tutor students. <ul style="list-style-type: none">> Deployed a business website using Angular and Firebase with around 10 reusable components> Teach 5 students 1:1 the basics of programming and french with engaging lessons <div>Python French Math Angular CLI Google Firebase HTML CSS TypeScript Git</div>
September 2019 April 2020	Innovation Engineer (R&D Application Developer), CIBC, Toronto, ON Prototyping a digital assistant by researching and implementing frontend, backend & infrastructure tech. <ul style="list-style-type: none">> Developed a queueing system to set event processing order, capable of efficiently organizing events> Built a 3-input neural network predicting user's overall sentiment based on their gestures, facial expression and what they say so that the assistant can change how she answers the user's questions <div>Node.js Python (AI & Edge Computing) AWS Agile Git (GitFlow) MySQL Mocha/Chai React.js IoT Jira</div>

PROJECTS

CHESS AI https://akathian.com/chess <div>Angular A/B Pruning MiniMax</div>	2021 - PRESENT
KAGGLE COMPETITIONS https://www.kaggle.com/akathiansanthakumar/competitions <div>Python numpy Computer Vision CNN</div>	2021 - PRESENT
FREELANCE WEB DEVELOPER https://ovisuals.com/ , https://becomestrongertogether.ca/ <div>Angular Firebase TypeScript Bootstrap NoSQL</div>	2020 - 2021