# Rohan Saha

Portfolio: simpleparadox.github.io
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## Education

- **University of Alberta - GPA: 4.0 / 4.0** — Edmonton, Canada
  *Doctor of Philosophy - Computing Science, Focus - NLP, LLMs* — *January 2022 - Present*
- **University of Alberta - GPA: 3.5 / 4.0** — Edmonton, Canada
  *Master of Science - Computing Science, Focus - Computational Neuroscience* — *September 2019 - November 2021*
- **Kalinga Institute of Industrial Technology - GPA: 9.48 / 10.0** — Bhubaneswar, India
  *Bachelor of Technology - Computer Science & Engineering* — *August 2015 - May 2019*

## Skills

- **Languages**: Python, C++, Java, SQL
- **Frameworks**: Scikit-Learn, PyTorch, TensorFlow, Pandas, Numpy, Huggingface
- **Tools**: Weights & Biases, MLFlow, Git, Jupyter, Render (for web hosting)

## Experience

- **University of Alberta** — Edmonton, Canada
  *Graduate Teaching Assistant*
  - **CMPUT 302 - Introduction to Human Computer Interaction (January 2023 - April 2023)**: Assisted the facilitation of the course to teach and design principles surrounding educational technology applications.
  - **PSYCO 576 - Machine Learning for Psychology and Neuroscience (September 2020 - December 2020)**: Designed 10+ hours of jupyter notebooks assignments to teach applications of machine learning to neuroscience data.
  - **CMPUT 301 - Software Engineering (September 2019 - April 2020)**: Taught and mentored teams of undergraduate students for building an android mobile application in a software engineering course. Technologies covered: Android, Java, Firestore NoSQL, Unit / Intent testing, Git
- **Robert Bosch Engineering and Business Solutions** — Bengaluru, India
  *Software Engineer Intern* — *January 2019 - May 2019*
  - **Mixed reality application for Microsoft HoloLens**: Teamed with 4 interns to design and develop a mixed reality proof-of-concept application using Microsoft HoloLens to visualize levels of ambient radiation.
- **Endurance International Group** — Mumbai, India
  *Software Engineer Intern* — *May 2018 - July 2018*
  - **Payment Gateway Upgrades**: Worked with a team of 2 people to upgrade the primary payments collection system to run on the latest version of Ruby on Rails. Reduced codebase size and database access time.

## Training and Certification

- **AI Career Accelerator Program Participant (Consulting)** — Edmonton, Canada
  *Alberta Machine Intelligence Institute (AMII)*
  - **Course Content Developer**: Contributed 10+ hours of work-integrated learning by creating content for a machine learning curriculum.
  - **Discussion Activities Developer**: Contributed to building course content for MLOps. Designing discussion activities for topics such as CI/CD, GitHub actions.
  - **Course Content Developer**: Contributed to 10+ hours of developing course content to deploy machine learning web apps on the Render hosting platform.
  - **Course Content Developer**: Created 3+ hours of material to teach and test knowledge of cloud computing technologies.

## Selected Projects

- **Relation Extraction on Wikipedia tables using Neural Networks (NLP, Knowledge Graphs)**: Project on relation extraction using Wikipedia table entities using convolutions and LSTMs Tools: Python, TensorFlow, Scikit-Learn (January 2022). GitHub.
- **Tracking the Neural Representation of Word Semantics in Infants (Computational Neuroscience)**: Master's thesis project - Supervisor: Dr. Alona Fyshe; Using machine learning to decode word vectors from time series brain-imaging EEG data recorded from infants. Tools: Python, Scikit-Learn (November 2021). Preprint.
- **Analysis of Evolutionary Program Synthesis for Card Games (Program Synthesis, Evolutionary Algorithms)**: We use an evolutionary approach to determine the best performing set of rules from a domain specific language for the card game Rack'O (April 2020) Link.
- **Homonym Identification using BERT - Using a Clustering Approach (Machine Learning, NLP)**: Identifying homonymous words in text using BERT embeddings and clustering algorithms. Tech: Python, Scikit-Learn (April 2020) Link.
- **Comparing Classification Models on Kepler Data (Machine Learning)**: Compared various machine learning algorithms to classify candidate exoplanets from the Kepler telescope data. Tech: Python, Scikit-Learn (November 2019) Link.

## Talks

- **Tech Talk - Linear Models in Machine Learning**: Lead speaker for a session on Linear Models at the Machine Learning Bootcamp organized by Google Developers Group Edmonton and Calgary Data Science Academy (October 2020) Video.
- **Primer Talk - Machines read, humans read: parallels between computer and human representations of meaning (along with Dr. Alona Fyshe)**: Gave a primer talk on how machine learning can be used with brain-imaging data to understand the processing of information in the human brain. (September 2020) Video.

## Service

- **Association of Computational Linguistics (ACL ARR)**
  *Peer reviewer for Anonymous Rolling Review for ACL 2023* *December 2023*

- **Computing Science Graduate Students' Association, University of Alberta** Edmonton, Canada
  *Executive Position*
  - **Vice President - May 2021 - April 2022**: Managed a team of 6 executive members to organize events for the Computing science department at the University of Alberta.
  - **Academic Director - May 2020 - April 2021**: Provided support to graduate students by creating academic growth opportunities.

- **Google Developers Group - Edmonton Chapter** Edmonton, Canada
  *Executive and Technical Lead* *December 2019 - Present*
  - **Managing events, teaching machine learning**: Worked with other executives to organize and manage community events in areas ranging from machine learning to cloud computing technologies.