

Rajiv Teja Nagipogu

✉ rajivpensidpri@gmail.com • [📄 rajiv256.github.io](https://github.com/rajiv256)

EDUCATION

Bachelor of Technology

Computer Science & Engineering

CGPA: 8.2/10

Thesis: A Unikernel Web Server in Rust

Advisor: [Prof. Chester Rebeiro](#)

Jul 2013 - May 2017

Indian Institute of Technology Madras

PUBLICATIONS

- [WikiSeeAlso: Suggesting tangentially related concepts for Wikipedia Articles](#) [ACCEPTED]
at The Fifth International Conference on Mining Intelligence and Knowledge Exploration [MIKE 2017](#)

COURSE WORK

- **Core Courses:** Artificial Intelligence, Knowledge Representation and Reasoning, Natural Language Processing, Kernel Methods for Pattern Analysis, Operating Systems, Algorithms and Data Structures.
- **Math Electives:** Basic Graph Theory, Probability and Statistics, Calculus-I&II

SKILLS

- **Programming Languages:** Python, C/C++, Java, Rust, Haskell (Decreasing order of proficiency)
- **Machine Learning Frameworks:** Pytorch, scikit-learn, MATLAB
- **Miscellaneous:** Elastic Search, MongoDB
- **Web Design:** jQuery, Node.js

WORK EXPERIENCE

Google Research

May 2020 - July 2021

via Optimum InfoSystem, Bangalore, India, Supervisor: Partha Talukdar

- Worked as a Research Engineer in the Natural Language Understanding (NLU) team.
- Worked on building ML models to enable temporal reasoning over events in natural language texts.

Kenome.io

Dec 2018 - April 2020

Bangalore, India, Supervisor: Partha Talukdar

- Worked as a Machine Learning Engineer.
- Kenome.io is a core AI company helping enterprises derive insights from unstructured text data using cutting-edge Machine Learning, NLP and Knowledge Graphs.
- Built and developed ML models on real world text data for client specific use-cases.
- The high level tasks include Named Entity Recognition and KG-based Question Answering.

PayPal

Aug 2017 - Nov 2018

Chennai, India

- Part of the team responsible for maintaining the Unix servers that run internal infrastructure applications.

Flipkart

May 2016 - June 2016

Bangalore, India

- Developed a regression model to optimize the parameters responsible for the relevance of search results.
- Implemented a feature to display the brands related to a query as 'Guides' in the search results page.

PROJECTS

A Unikernel Web Server in Rust [\[CODE\]](#) [\[DOCUMENTATION\]](#)

Jan 2017 - May 2017

Undergraduate Thesis, Guide: [Prof. Chester Rebeiro](#)

IIT Madras

- The aim was to implement a standalone web server completely in Rust and demonstrate the utility of such servers on the cloud in terms of memory safety and speed.
- Built a network stack from scratch on top of a minimal open-sourced [Rust kernel](#).
- Wrote a network driver for the [RTL8139](#) ethernet card to handle packet transmission and reception mechanisms.
- Implemented a driver for the [PIC8259](#) interrupt controller to bridge the hardware and system interrupts during packet exchange.
- The server in its current state can transmit and receive fixed-length UDP packets.
- Work got featured in Rust community's [newsletter](#)([6th entry](#)).

Link Augmentation for Wikipedia Articles [\[CODE\]](#) [\[REPORT\]](#)

Oct 2016 - Nov 2016

Natural Language Processing, Instructor: [Prof. Sutanu Chakraborti](#)

IIT Madras

- The aim was to suggest 'See also' section links that augment the connectivity of an under-developed Wikipedia article.
- Extracted the candidates from Wikipedia's category tree.
- Developed a web content based similarity measure and a link-based measure that ensure relevance and diversity among the suggestions.
- Combined these measures using classifier based weights and used the ensemble score to rank the candidates.
- Top ranked candidates are then suggested as 'See also' links.

Spelling and Phrase Correction [\[CODE\]](#)[\[REPORT\]](#)

Sep 2016

Natural Language Processing, Instructor: [Prof. Sutanu Chakraborti](#)

IIT Madras

- *Spell correction*: Implemented Levenshtein distance using dynamic programming to collect the candidates at a specific edit distance.
- Implemented a "Noisy channel" based bayesian inference method for ranking them.
- Implemented the BK-Tree data structure to facilitate faster retrieval of the candidates.
- *Phrase correction*: Implemented a probabilistic language model using N-grams from the [COCA](#) corpus.
- Demonstrated the context awareness of the model in detecting incorrect usage of words in sentences.

Chess Engine with AI [\[CODE\]](#)

Jul 2015 - Nov 2015

Personal Interest Project

IIT Madras

- Implemented a modified Minimax algorithm with alpha-beta pruning to build a dynamic depth game tree based on the pieces involved.
- Designed a scoring algorithm based on the game's state along with several positional heuristics.
- Reduced the complexity of computations greatly by implementing a data structure called BitBoard that represents each row of the board as a 64-bit integer i.e. 8-bits per cell.

Algorithm Implementations for Competitive Programming [\[CODE\]](#)

Personal Interest Project

IIT Madras

- Active in the competitive programming arena since my sophomore year.
- Explored and implemented advanced data structures and algorithms outside the academic curriculum.

SCHOLASTIC ACHIEVEMENTS

- Received a scholarship from the Govt. of India that covered 70% of my college fee.
- Secured an All India rank of 1865 in IIT-JEE (Indian Institute of Technology - Joint Entrance Examination) among more than 5,00,000 candidates.
- Stood II in a state-wide talent search exam conducted by S.A.S.T (Society for Advancement in Science and Technology) during IX standard.

EXTRA-CURRICULAR ACTIVITIES

- Organized a departmental sports event, as a core member of the department club.
- Organized and taught a python workshop attended by over 100 undergraduate students for our university's annual Techfest, Shastra 2016.
- Also prepared the problem sets for a three-tier programming event, Triathlon, during this time.