DIPRO RAY

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EDUCATION

University of Illinois at Urbana-Champaign — Urbana-Champaign, IL
Bachelor of Science (Engineering), Computer Science — August 2017 – May 2021
Minor, Mathematics — **Cumulative GPA: 3.99/4.00**
Edmund J. James Honors Program Scholar, Dean's List

- Taken: Algorithms, Data Structures, Systems Programming, NLP, Software Design Studio, Data Analysis & Viz., Number Theory, Numerical Methods.
- Current: Database Systems, Bioinformatics, Programming Languages & Compilers, Combinatorics, Senior Thesis.

PROFESSIONAL EXPERIENCE

*Incoming Software Engineer Intern at **Airbnb Seattle** and **Facebook NYC*** — *Summer and Fall 2020*

Facebook, Inc. — May 2019 – August 2019
Software Engineering Intern – Typeahead Team, Search Org — Menlo Park, CA

- Performed feature engineering on two people search and usecase models to reduce their original features capacity by 67%, ran their A/B tests on 25+ million people which recorded stat-sig online metric gains for app search engagement.
- Improved internal simulator tooling for Typeahead engineers using Hack, PHP and Javascript. Impact: improved rendering speed by 10x; added functionality to view NLP signals and backend request/response, and compare ranking features data.
- Onboarded the people search typeahead ML model to DAG workflow for easier ML model lifecycle management.

FORWARD Data Lab — August 2019 – present
Undergraduate Researcher + Senior Thesis, Advisor: Prof. Kevin Chen-Chuan Chang — Champaign, IL

- Developing an automated, domain-based, keyword detection system based on the Pattern-Relation-Duality (PRDualRank) framework. Implementing the system in a multithreaded manner in Python using spaCy, NLTK.
- Developing novel precision and recall evaluation metrics for the system. Achieved comparable performance against state-of-the-art AutoPhrase phrase detection system, with significantly lower complexity overhead.

National Center for Supercomputing Applications — August 2018 – May 2019
Software Engineering and Research (SPIN) Intern – High Performance Computing for Genomics group — Champaign, IL

- Fully automated a developed statistical analysis and pipeline design through R code, optimizing it through fast matrix calculation, forking and multi-threading, and building a GUI for the pipeline.
- Upgraded the statistical pipeline in place for preprocessing research data by integrating Apache SparkR usage, containerizing for cloud deployment; ultimately, it will be published on CRAN and open-sourced through Github.

PROJECTS

Spotify Indexer — September 2019 – December 2019

- Created a web application that analyzes Spotify music-listening trends of the user and assigns him/her a score based on how similar their tastes are to what is mainstream.
- Made the application highly scalable using AWS, DynamoDB. Reduced the score computation time by 50% by incorporating richer information within the database.

Music Visualizer — April 2018 – May 2018

- Created a computer application that synthesizes real-time 2D and 3D visualizations of music by analyzing its frequency spectrum, amplitude waveform and other technical aspects, using C++, openFrameworks, Essentia music analysis library.
- Eliminated irregularity and abruptness in visualization of raw technical data using the CGI concept of Perlin Noise.

TECHNICAL TOOLS

Very Knowledgeable: C, C++, Python, Java.
Knowledgeable: Git, SQL, Hack/PHP, MongoDB, Haskell, JavaScript, LaTeX, Data/ML/NLP Python libraries.
Somewhat Knowledgeable: C, Racket, Verilog, MIPS.

RECENT PROFESSIONAL INVOLVEMENT

Tau Beta Pi • Reflections | Projections Tech Conference Staff • Lab for Parallel Numerical Algorithms • CS 374 (Algorithms) Staff • ACM • Human Capital