DIPRO RAY

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EDUCATION

University of Illinois at Urbana-Champaign August 2017 – May 2021
Bachelor of Science (Engineering), Computer Science (Minor, Mathematics) **Cumulative GPA: 3.99/4.00**

- Taken: NLP, Algorithms, Data Structures, Systems Programming, Software Design Studio, Bioinformatics, Compilers, Number Theory, Combinatorics, Ethics.
- Senior Thesis (completed junior year): "Leveraging the Pattern-Relation Duality for Domain-specific Keyphrase Mining"

PROFESSIONAL EXPERIENCE

Facebook, Inc. August 2020 – November 2020
Software Engineering Intern – Speech Infra Team, AI Applied Research Org Remote

- Built an real-time on-demand automatic speech recognition (ASR) service latency tracing tools for Live Videos. Worked on Facebook's complex low-latency ASR pipeline to record time taken at expensive stages in the service in C++.
- Improved several internal debugging tools concerning live video captioning by pulling logs. Created a new internal tool for video caption debugging by comparing ASR results with user-uploaded SRT caption files.

Airbnb Summer 2020
Software Engineering Intern (Recipient) Deferred due to COVID-19

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 ML 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.

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.

FORWARD Data Lab August 2019 – present
Undergraduate Researcher, 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.

Laboratory for Parallel Numerical Algorithms October 2019 – present
Undergraduate Researcher, Advisor: Prof. Edgar Solomonik Champaign, IL

- Conducted literature survey on computationally efficient methods for Canonical Polyadic (CP) Decomposition of spare, low-rank tensors, and analyzed spare decomposition performance on SPLATT and Cyclops Tensor Framework.
- Analyzing Tucker decomposition-based tensor completion techniques for higher-dimensional tensors, and developing code implementation with Numpy and CTF.

TECHNICAL TOOLS, AWARDS & RECENT PROFESSIONAL INVOLVEMENT

Tools: Very Knowledgeable: C, C++, Python, Java. **Knowledgeable**: Git, SQL, Hack/PHP, MongoDB, Haskell, JavaScript, LaTeX, Data/ML/NLP Python libraries. **Somewhat Knowledgeable**: Neo4j, Racket, Verilog, MIPS.
Awards: NCSA Student Pushing Innovation Fellow, Tau Beta Pi Outstanding Junior, Grainger Engineering Scholar, Mrs. E. J. Hoover Scholar, Edmund J. James Scholar, Dean's List.
Recent Professional Involvement: Tau Beta Pi • Reflections | Projections Tech Conference Staff • CS 374 (Algorithms) Staff • CS 361 (Prob & Stat) Staff • Illinois Geometry Lab • DAS Lab (EarthSense) • ACM • Human Capital