Anis Chihoub

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Education

- **Rutgers University - New Brunswick** May 2023
  Bachelor of Science in Electrical Engineering *New Brunswick, NJ*
  Bachelor of Science in Computer Science *GPA: 3.9*

Research Experience

- **JJ Slade Scholar** June 2022 – Present
  Rutgers University *New Brunswick, NJ*
  - Thesis Title: Graph Neural Networks for Neuropsychiatric Disorder Classification
  - Advisor: Waheed Bajwa
    * Researching graph neural networks with applications to classifying neuropsychiatric disorders.
    * Preprocessing brain connectomes from multiple subjects to create brain graphs for the analysis of neuropsychiatric disorders.
    * Examining the plausibility of multiview learning approaches to classify neuropsychiatric disorders by creating multiple views using synthetic graph data generated using Pytorch Geometric.

- **Research Assistant** August 2020 – August 2022
  Rutgers University *New Brunswick, NJ*
  - Advisor: Anand Sarwate
    * Researched Differential Privacy and its applications to machine learning to provide the necessary levels of privacy for various .
    * Wrote Python Code to develop a differentially private KNN algorithm for image classification using principles from Probability and Linear Algebra to achieve over 90 percent accuracy.
    * Experimented using the laplace mechanism, gaussian mechanism, and colormaps in order to provide differential privacy to a heatmap of functional connectivity data.

- **Summer Research Intern** May 2022 – August 2022
  Washington University in Saint Louis *Saint Louis, MO*
  - Advisor: Ulugbek Kamilov
    * Researched the applications of complex valued neural networks for MRI restoration under the guidance of Professor Ulugbek Kamilov and two graduate students.
    * Wrote python code to develop a complex valued U-Net to achieve a structural similarity score of 92 percent.
    * Received a honorable mention at end of program poster fair out of a pool of 50 posters.

- **Research Intern** June 2021 – August 2021
  National Science Foundation/California Polytechnic Institute: Pomona *Pomona,CA*
  - Advisor: Tingting Chen
    * Developed a privacy preserving facial recognition algorithm using fully homomorphic encryption based on Microsoft SEAL to perform inference on over 3000 images.
    * Implemented a non-private model based on ResNet-18 architecture with over 90 percent accuracy using machine learning libraries such as Tensorflow and Sklearn.
    * Prepared a report on findings alongside faculty member Dr.Tingting Chen to present at multiple conferences with upwards of 100 attendees.

Relevant Coursework

- **ECE**: Probability and Random Processes, Digital Signal Processing, Machine Learning, Computer Architecture, Robotics and Computer Vision
- **Computer Science**: Databases, Analysis of Algorithms, Data Structures, Data Science, Internet Technology

Honors

- **Tau Beta Pi Inductee** — December 2021
  Rutgers University, New Brunswick — *New Brunswick, NJ*
- **George H Herman Endowed Scholarship** — August 2021
  Rutgers University, New Brunswick — *New Brunswick, NJ*
- **IEEE HKN Inductee** — May 2021
  Rutgers University, New Brunswick — *New Brunswick, NJ*
- **Rutgers Scarlet Scholarship** — July 2019
  Rutgers University, New Brunswick — *New Brunswick, NJ*

Poster Presentations

1. **Anis Chihoub**, Yuyang Hu, Weije Gan, Ulugbek Kamilov "Complex Valued Neural Networks for MRI Reconstruction". In Navy Science and Engineering Conference (NASEC), 2022
2. Ye Tao, **Anis Chihoub**, Anand Sarwate, Sandeep Panta, Sergey M. Plis, Vince D Calhoun "Privacy-Preserving Visualization of Functional Network Connectivity". In IEEE Engineering in Medicine and Biology Conference (EMBS), 2022
3. **Anis Chihoub**, Tingting Chen, Tera Ever "Privacy Preserving Neural Networks for Facial Recognition". In Council on Undergraduate Research (CUR), 2021

Volunteer Experience

- **Design Advisor** — May 2022 – Present
  Rutgers University, New Brunswick — *New Brunswick, NJ*
  - Worked alongside the Honors Dean in order to administer several programs targeted at honors students, reaching a total of 200 students.
  - Currently designing and design and development course for the spring with other a group of six people to reach an audience of around 100 students.
- **Peer Tutor** — August 2021– Present
  Rutgers University, New Brunswick — *New Brunswick, NJ*
  - Volunteered 2 hours per week as a peer tutor as part of the School of Arts and Sciences Honors Program tutoring program.
  - Designed multiple lessons in order to reinforce concepts covered in lecture and assess understanding.

Institutional Service

- **Instructional Assistant** — July 2020 – Present
  Rutgers University, New Brunswick — *New Brunswick, NJ*
  - Served as a Learning Assistant for Analytical Physics 2A and Introduction to Computer Science, courses with over a thousand students each.
  - Aided over 100+ students between multiple recitations by leading interactive sessions to improve student performance and outcomes.
  - Collaborated with course staff to design ways to improve student outcomes and grades by as much as 50 %.
  - Graded and Proctored exams for over 500 students during the Spring 2022 semester.
- **Math Grading Assistant** — July 2020 – May 2021
  Rutgers University, New Brunswick — *New Brunswick, NJ*
  - Served as a Grading Assistant for Differential Equations and Linear Algebra, two math classes with over 100 students each.
  - Assessed over 175 students work per semester for understanding of various mathematical concepts.
  - Worked with supervising professor in order to ensure that students met learning goals and discuss ways to improve student outcomes.
- **Academic Chair** — December 2021 – Present
  Tau Beta Pi Rutgers University, New Brunswick — *New Brunswick, NJ*

- Serving as Academic Chair for the NJ Beta Chapter of Tau Beta Pi, a selective honors society accepting only the top 12.5 of juniors and 25 percent of seniors.
- Developing plans to run a research night to showcase the plentiful research opportunities at Rutgers University to over 30 attendees.
- Oversee the induction of over 50 new members into the chapter each fall semester and ensure that inductees understand the requirements expected of them.

Work Experience

- **Incoming Software Engineering Intern at JP Morgan Chase** June 2023 – Present
  JP Morgan Chase Co. *Wilmington, DE*
  - Incoming software engineering intern for the summer of 2023.
- **Data Engineering Intern** February 2023 – Present
  Colgate-Palmolive *Piscataway, NJ*
  - Developing application in javascript and html to host over 10000 financial reports belonging to finance operations at Colgate-Palmolive.
  - Used Postgres SQL in order to query mutiple records to find relevant data for end users to understand particular transactions.
  - Wrote javascript code to develop an easy to use front end for over 50 users to interact with and query data.

Projects

- **J.E.D.I - Join, Educate Discover, Invest** | *ReactJs,NodeJs, HTML, Python, Flask* January 2022 – Present
  - Built a webapp using React and Flask with a group of eight people to provide information to investors; later presented work at school wide symposium.
  - Created a RESTful API to query thousands of google search results and determine relevant articles for a stock.
  - Trained machine learning algorithms in python, such as ARIMA and the PROPHET model, to forecast the growth of stocks with 92 percent accuracy.

Technical Skills

Languages: Java, Python, C/C++, SQL (MySQL, SQLite), JavaScript, HTML/CSS, MATLAB
Frameworks: Node.js, Flask
Developer Tools: Git, Docker, VS Code, Visual Studio, Eclipse, IntelliJ, Pycharm, GitHub, Documentation
Libraries: pandas, NumPy, Matplotlib, Tensorflow, SKlearn, Microsoft Office
OS Systems:Windows, MacOS, Unix, Linux