RAZI MAHMOOD

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EDUCATION

University of California, Berkeley, B.A. in Data Science (Domain Emphasis: Cognition) Expected Graduation: *May 2022*

SKILLS SUMMARY

Fluent: Python (3+ years), Jupyter Notebook, Pandas, Machine learning, Deep learning libraries and platforms (Tensorflow, Keras, Scikit-learn, Numpy, Nltk, Gensim, Matplotlib, etc.), Java (2+ years), Environments (Visual Studio, IntelliJ, Eclipse IDE, Sublime Text).
Data science tasks: Data preparation, processing, cleansing, standardization, analysis.
Moderate: R, C, Scheme, SQL, MATLAB, JavaScript, HTML, CSS, Pytorch, Adobe Premiere Pro, Photoshop, Maya, Unity, RISC-V Assembly Language, Logism, Latex, Cloud technologies (Docker, Kubernetes), ITKSnap

PROFESSIONAL EXPERIENCES

Deep Learning Team Intern – Hyperfine ***June 2021 – Aug 2021***

- Interned as part of team of professional data scientists to organize annotated datasets and categorical labeling of brain MRI reports
- Wrote python scripts to collate results of radiologist annotations of brain regions by pairing with original data files using Pandas dataframes and string matching of file names
- Developed simple UI in Jupyter to record clinician ground truth anomaly labels for images from examination of corresponding radiology reports; efficiently processed manual ground truth labels for 7200 annotations across 600 reports for 12 labels each

Data Science Intern – Xoran Technologies ***June 2021 – Aug 2021***

- Surveyed annotation tooling software to achieve 3D segmentation in CT images. Trained colleagues on labeling brain, sinus anatomy CT.
- Hands-on experience with ITKSnap, experimented with CNNs and UNet models to identify eyeballs/sinus and provide volume reconstructions

Content Gathering Intern - SWAYD (Mobile Visual Discovery) ***Jan. 2020 – Mar. 2020***

- Worked as an intern in a team of 4 for the startup. Developed algorithms in Python for classifying images with restaurant locations.
- Obtained hands-on experience of data preparation, cleansing, processing, algorithms, APIs/platforms (Postman, ClarifAI, Google Maps API)
- Helped train model to match Berkeley restaurants data collected from Instagram hashtags, captions, posts, geo-tags in JSON files

Lab Assistant/Academic Intern - CS/Data Science, UC Berkeley ***Aug 2019 – May 2021***

- Facilitated students' introductory Berkeley CS experience through hands-on instruction, tutoring in office hours and CS labs, mediating online course forum discussions (CS61A), providing problem walkthroughs for class projects and bug fixing on Python Jupyter Notebooks (Data 100).
- Received recognition from students for assistance with debugging, quick explanations, recapping course topics (data visualization, modelling)

Machine Learning Research Intern - IBM Research ***Jun. 2014 – Jul. 2016***

- Mentored by researchers at IBM and Stanford during high school on several medical imaging AI research projects for automatic detection of pulmonary embolism, cardiac aneurysms, and dilated cardiomyopathy in CT and echocardiography. Used ImageJ image processing libraries, used clinical data from HL7 messages (HAPI parser) and imagery in DICOM format. Filed a patent disclosure.
- Presented in Synopsis Science Fair, 2014-2016, and published in international conferences (AMIA'14 PMID: 25954393, IEEE ISBI'15) at age 14.

DEEP LEARNING/ML/DATA SCIENCE TEAM PROJECTS

IBM Watson AI Ops – Anomaly Detection in IT Logs ***Jan. 2021 – May 2021***

- Worked on external team project under the mentorship of Rama Akkiraju, CTO of Watson AI Ops at IBM on developing new unsupervised deep learning methods for analyzing IT logs from cloud application servers and storage. Coding in Python and using logpai libraries.

Deep Learning Projects on Kaggle ***June 2020 – Aug. 2020***

- Worked under the mentorship of a data scientist, Humza Iqbal, Secruiti.ai on several Kaggle datasets to build deep learning models for image recognition ranging from digit recognition using CNNs on MNIST data, custom binary classifiers for cats/dogs, to the TGS salt identification challenge for segmenting salt deposits using U-net. Gained experience on deep learning model building using Keras, Tensorflow, and PyTorch.

Machine learning-driven Contraceptive Use Prediction ***Jan 2020 – Apr. 2020***

- Worked in a three-member team to find optimal predictor variables for the use of contraceptives in a survey dataset gathered for Indonesian women for purposes of family planning rollout measures. Experimented with logistic regression, decision trees, and random forest with PCA on features. Implemented using Scikit-learn library. Dealt with data pre-processing, cleansing, and formatting. Starting to explore standardization of patient data formats such as FHIR for large scale patient record analysis.

Cal Hacks 6.0 Collegiate Hackathon : LateNight ***Aug 2019 – Dec. 2019***

- Developed an app as part of a group project that used neighborhood crime data from local county to develop a safety index for the restaurants in neighborhoods in Berkeley. Involved web scraping, crime record analysis, map visualization. Programmed in Swift and Python.

COMPUTER SCIENCE CLASS PROJECTS

Full-fledged CPU design ***Aug 2020 – Nov. 2020***

- Developed a full-fledged CPU design for processing a full set of RISC-V instructions using Logism in CS61C Computer Architecture course.

Simulation of the Enigma Machine ***Aug 2019 – Dec. 2019***

- Built Java-based simulator for a generalized version of the Enigma machine used during WWII for encrypting messages & substitution ciphers.

Escape the Tune Game ***Jul. 2016 – Aug 2016***

- Selected to participate in competitive California Summer School for Math & Science (COSMOS) at UC Santa Cruz. As part of Video Game Design cluster, built space game where the player navigates a spaceship syncing to musical rhythms. Implemented in Unity and Maya.

PUBLICATIONS

- R. Mahmood, T. Syeda-Mahmood, "Automatic detection of dilated cardiomyopathy in cardiac ultrasound videos," in Proc. American Medical Informatics Association (AMIA) Annual Conference, Washington, D.C., November, 2014.
- R. Mahmood, T. Syeda-Mahmood, "Automatic detection of cardiac aneurysms in cardiac ultrasound videos," in Proc. International Symposium on Biomedical Imaging (ISBI), New York, April 2015.

EXTRACURRICULARS & AWARDS

- Selected for the competitive California Summer School for Math & Science (COSMOS) at UC Santa Cruz for Video Game Cluster.
- Runner up in the 2020 Undergraduate HCA Essay Prize for doing independent, original research on social, cultural, policy of ethical issues at the intersection of data science, technology and society.
- Creator, razifilmblog.blogspot.com. Personal film blog, critiquing aspects such as motion capture, CGI, and cinematography in contemporary reviews. Shared film critiques in school magazine. https://elestoque.org/2017/12/11/magazine/print-special-report/film-lover-razi-mahmood/