Quazi Irfan

Data Scientist | Statistician | Data Analyst | Data Engineer

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Summery: Detailed oriented recent grad in Statistics and Computer Science bringing in uncommon combination of robust programming, theoretical understanding of fundamental data analysis algorithms, and research experience with strong desire to join a team and take on ownership of complex business problems with minimal supervision.

EXPERIENCES & PROJECTS

- **Software Engineer** at Query.AI, Brookings, SD   09/2021 - 07/2021
  - Implemented Python modules to **extract, validate and transform data** from REST API endpoints
  - Improved Celery task queue performance by **80%** using Python green threads of web app running on Docker(AWS)

- **Graduate Researcher** at South Dakota State University, Brookings, SD   09/2020 - 12/2021
  - Researched robot localization using inertial measurement sensor by building hardware platform and researched **signal processing algorithms** to calculate displacement from acceleration signal
  - Researched **FIR** and **IIR** filtering algorithms and **numerical integration** methods to smooth sensor signals
  - Implemented **breadth first search** pathfinding algorithm

- **Graduate Teaching assistant** at South Dakota State University, Brookings, SD   09/2018 - 05/2020
  - Co-developed **R and SAS programming course** and contributed to textbook 'Learn R through examples'
  - **Fixed logical and library dependency bug** by decompiling **Java** binary used for fingerprint data analysis
  - Decreased grading time by **90%** by developing automation scripts to grade (x86 assembly) assignments
  - Implemented **Jaro–Winkler string distance algorithm** to detect similar assignment submissions

- **Data Analysis Projects** at South Dakota State University, Brookings, SD   08/2018 - 12/2021
  - Analyzed data sets using **Multiple Linear Regression** using **R** and **statsmodels** Python library
  - Researched about **Feature selection, Model selection and Model validation** using different techniques
  - Addressed **multicollinearity** problem using Variation Inflation Factor, Ridge and LASSO
  - Built classifier for **high dimensional fingerprint dataset** using dimension reduction technique (principal component analysis) and linear discriminate analysis
  - Analyzed datasets using **SQL** and developed JavaFX app that dynamically generates UI from DB metadata
  - Built multiple classifiers using **scikit-learn machine learning** library
  - Developed **data visualization** web application using Flask, Pandas and Plotly and deployed on Linux VM running on Google Compute Engine behind Nginx reverse proxy

- **Programming Projects** at South Dakota State University, Brookings, SD   08/2015 - 08/2018
  - Researched **Particle Swarm Optimization** algorithm and implemented vanilla PSO in Julia and Python
  - Implemented **backtracking algorithm** to calculate Schur's number
  - Implemented **Markov chain Monte Carlo** sampler in R and C++ to compute posterior distribution
  - Developed **assembler for SIC-XE instruction set** in Java
  - Developed Ada to 16bit Intel 8086 **compiler** using recursive descent parser generating three address code
  - Built 2d side scrolling game using Java 2d featuring **AABB collision** detection
  - Organized multiple ACM seminars on **Git** and **Vim**; Reported bugs on Unity3d and IntellijIDEA

- **Undergraduate researcher** at South Dakota State University, Brookings, SD   09/2017 - 07/2018
  - Received **$5,000** funding for research proposal to build gloves for Virtual Reality
  - Built 3d game and **motor-driven VR gloves** to track finger movement and send haptic feedback when the finger interacts with an in-game object; **Research Blog** on Medium

EDUCATION & SKILLS

- MS **Statistics** (Fall '21) and BS **Computer Science**(Summer '18) from South Dakota State University

- **Skills**: Python(Numpy, Flask, Matplotlib, sklearn, statsmodels, Plotly, Pytest), R, Java, SQL(PostgreSQL), Redis, Bash, Linux, HTML/CSS, Javascript, REST, Git, Github, Vim, Docker, Algorithm analysis, Relational database, Linear Algebra, Statistical Inference and Modeling(Regression Analysis, Multivariate Analysis), Bayesian Statistics

PUBLICATIONS

- Building an exoskeleton glove on virtual reality platform - **Irfan, Q.**, Jensen, C., Ni, Z., & Hietpas, S. (May '18)

- Inertia Measurement Unit-Based Displacement Estimation via Velocity Drift Compensation Using Ordinary Least Squares Method - **Irfan, Q.**, Ciarcia M., & Hatfield G. (May '22)