Quazi Irfan

Data Scientist | Statistician | Data Analyst | Data Engineer

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Summery: Recent grad in Statistics and Computer Science bringing in uncommon combination of programming problem solving skill, theoretical understanding of fundamental data analysis algorithms, 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)