ABRAR AHMED

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EDUCATION

MS Masters in Computer Science   2019 – 2021
Universität Rostock, Rostock, Germany

BS Bachelors in Computer Science   2014 – 2018
Bahria University, Karachi, Pakistan

MPP Microsoft Professional Program – Front End Development   2017 - 2018
Microsoft – EdX

DAFM Diploma in Advertising & Film Making   2016 - 2017
ARENA Multimedia

WORK EXPERIENCE

Master Thesis — *Fraunhofer IGD*   Feb 2021 – Jul 2021
- Topic: Bezier line object detection (detection of microscopic wood rings and transmission power-lines)

Research Assistant — *Fraunhofer IGD*   Feb 2020 – Feb 2021
- Built the interface and **APIs** for the TensorRT inference engine from scratch using **Vue.js**.
- Built the UI and APIs for the TensorRT inference engine from scratch using **Vue.js**.
- Contribution to the **design** of the IGD proprietary VISION client system architecture.
- Proposed a **neural net architecture** that directly predicts Bezier lines/curves instead of bounding/anchor boxes for certain specialized applications.
- Examined the neural network interpretability by implementing novel feature visualization using **Python** and **TF**.
- *Skills: JS, Vue.js, Express.js, Image processing, Deep learning, Python, TensorFlow, OpenCV*

Research Assistant — *Max Planck Institute - DEMOGR*   Jul 2020 – Mar 2021
- Literature, online and social media search.
- **web scraping, data handling**, cleaning, management, and accuracy validation.
- **Statistical analysis** and support in the preparation of **visualizations and reports**.
- *Skills: Web scraping, Data analysis and Visualization, Data management, and Accuracy validation*

Werkstudent Software Engineer — *HHLA – HPC*   Sep 2019 – Nov 2019
- Automated the **data pre-processing** pipeline reducing the time consumption by 98.3%.
- Derived the optimal container dwell time prediction by implementing **time-series analysis** and **forecasting** of the container data with an accuracy of 98%.
- *Skills: Statistics, Time-series analysis, Forecasting, TensorFlow, Specifications*

Freelance Software Engineer   Jun 2014 – Mar 2019
- Completed **200+** small and big projects by myself.
- **Co-founded** 3 micro-startups (Axisport Lab, Graphimator & Stitch-In)
- Wore multiple hats including as a software engineer, graphic designer, team leading, blogger & the list goes on.
- Clients: Cryptozilla.io *****, Medb diagnostics ******, Horizon Tech, Productivenous, Al Wahdat Travels, GiveAKidney, Midwestradar, Chotaay Delivery, UPenn, Flexicom, IFI, Individual entrepreneurs, and many more.

React Native Developer — *CryptoZilla.io* *****   Feb 2018 – Feb 2019
- Developed a centralized and joint **API system** (5 services) on **Google cloud platform** using Cloud shell.
- Researched and developed tools to formulate **data acquisition** from more than 190 cryptocurrency exchanges.
- Devised various complex but optimized algorithms for computation and logic of the architecture using **React Native** and other tools.

Front End Engineer — *MedB Diagnostics* ******   May 2016 – Aug 2018
- Implemented various E-commerce modules and features including Shipping, payment, front and back-office modules on **Prestashop**.
- Developed modern **UI** from scratch and **optimized landing pages** for mobile and search engines.
- Planned workflows, scenario analysis, and **code review** of several in-house projects.

OPEN SOURCE / FUN PROJECTS

A Novel Bezier Line Object Detection Library — (In Progress - Opensource)
- Implementing an idea that would allow small and microscopic detection of specialized applications that involve lines and curves.

A Form Validator in React Native — (In Progress - Opensource)
- A one-screen nice-looking form built on react native custom validation rules.

Error Reporting Tool in Vue.JS — (In Progress - Opensource)
- A one-page error reporting UI for Vue.js developers and enthusiasts.

Real-Time Hand Detection using neural networks (Single Shot Detector) — (Opensource)
- Using neural networks solved the hard problem of tracking hands in real-time using a customized first-person POV hand dataset.

Real-Time Object Detection & Prediction using Machine Learning (Opensource)
- Build the next generation RTS rare coin detector utilizing ML features to detect, train and optimize scanner algorithms.

FINEGAN implementation for Python v3.7 — (Opensource)
- Refined the novel FINEGAN implementation supporting Python 3.7 and Pytorch 1.1.0

Berlin Weather Forecast using Random Forest Algorithm — (In Progress - Opensource)
- Prediction of the maximum temperature tomorrow in Berlin using Random forest algorithm.

TECHNICAL SKILLS & KNOWLEDGE

Machine Learning, Data Analysis & Computer Vision Frameworks

Deep learning, Neural networks, Computer Vision, OpenCV, Python, Scikit-Learn, TensorFlow/Keras, Pytorch, Pandas, NumPy, SQL, Seaborn, Matplotlib, Jupyter Notebooks, Clarifai, MS Office, MS Excel, Google Analytics

Web / Mobile Application Frameworks

HTML5, CSS3, BEM, LESS and SASS, Javascript ES5/6, React, Vue.js, Angular JS, Node.js, React Native, Android, Bootstrap, JSON, XML, SQL, jQuery, Jenkins, Progressive Web Applications, Automated Testing, Rest APIs, SOAP, Selenium, Mocha, Cross Browser Testing, Compatibility and Accessibility, Performance Optimization, Git, Linux

Cloud / Backend

MySQL, NoSQL, GraphQL, MongoDB, AWS, Google Cloud Engine, Firebase

Others

Adobe Suite: Adobe Photoshop, Adobe Illustrator, Adobe XD, CorelDraw, Premiere Pro, InDesign, After Effects, UI design, Advertisement design, Branding, Video Editing, Storyboarding, User experience, SEO, Content writing, etc.

PUBLICATIONS

- Research Report: Situation Aware Assistance, private/unlisted, May 2019
- Research Report: Augmented Reality in Altered Gravity, private/unlisted, April 2019
- designerarsenal.com (blog - disbanded)
- axisportlab.com/blog (blog - disbanded), prev. howfreelance.com
- https://sapienspirit.wordpress.com/ (a casual blog)