Tyler Scott Worman | RÉSUMÉ

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Professional Experience

Ford Motor Company / Ford AV LLC | LEAD AUTONOMOUS VEHICLE SYSTEM TEST - FUTURE TECH Jun 2021 - Apr 2023
Design, develop, and maintain hardware and software systems enabling repeatable testing, data ingestion, and metric generation for ADAS and autonomous vehicle systems. Lead team testing ADAS and autonomous vehicle systems through the use of on-road pilot deployments and testing at closed test facilities.

- Developed software tooling (Python/C++/C/Javascript)) for creating, executing, and evaluating vehicle system tests.
- Developed simulators for testing V2X, Control, and Perception Systems for CyberRT / Apollo / ROS (C++/Python/DDS/Bazel).
- Developed vehicle in the loop (ViL) traffic simulator (Python/C/Javascript) for vehicle tests.
- Designed and developed ADAS metrics framework and analytics tool sets used by Ford Autonomy (HPC, K8s, Apache Airflow, Python, C++, GCP BigQuery, GCP Data Studio)
- Project planning, budget support for development of L2+ ADAS Systems on next generation production vehicles.
- Supervised staff for testing of L2+ ADAS Systems on next generation production vehicles.
- Provided operations staffing supporting a low-speed L4 autonomous shuttle pilot deployment which moved goods.
- Utilized Unreal/CARLA simulator to design and execute scenarios for complex software in the loop (SiL) vehicle CI pipeline.

Mcity at the University of Michigan |MANAGER - ENGINEERING Feb 2018 - Jun 2021
Design, develop, and maintain hardware and software for data collection, lab control, and reporting systems supporting startups in the Robotics and Automotive industry. Mcity is a public/private partnership supporting a proving ground for testing connected and automated vehicles. My responsibilities included managing engineers, supporting customers, design and development of systems enabling research in our test facility.

- Designed, developed, and licensed, a REST/WebSocket API (Python, C, JSON, OAS) and interface (Vue, Node.JS) enabling reproducible infrastructure orchestration for vehicle testing and smart cities.
- Designed and developed custom OAUTH and SAML provider utilizing Python, PostgreSQL, Vue.
- Designed and developed a climate controlled sensor housing (LIDAR, RTK GNSS, IR, HD Camera) used for data collection.
- Designed and developed IoT devices (Eagle, C, Python, MQTT, ROS) for RTK GNSS, rail PLCs, ADAS robots, and V2X/DSRC.
- Developed AWS Cloud (EC2, RDS, Lambda, API Gateway, S3, Batch, ECR, Kinesis, Cloudwatch, Route53, IAM) services for processing IoT and vehicle sensor data.
- Developed Edge Node compute system (Docker) and API (Python) for low latency data collection and processing.
- Developed a CI/CD (Edge, AWS, Heroku) pipeline utilizing Pytest, Cypress, Mocha, JUnit, Github, Docker, and CircleCI.
- Managed a team of 10+, including interns which had immediate placement at industry companies upon graduation.
- Operated, tested and supported data collection for an on-road low speed autonomous shuttle deployment.

Michigan Medicine | DATA WAREHOUSE ARCHITECT Jul 2011 - Feb 2018
Designed, developed, and maintained the Health System's data warehouse which provides a complete picture of patient care. The system was used for both clinical research and financial operations. I mentored multiple software developers and was responsible for design, development, code review, and deployment of ETL that supported various warehousing systems.

- Developed account and ETL management web applications (C# .Net/.Net Core/ASP .Net/Typescript/HighCharts).
- Architect of Big Data platform (Hadoop, Spark Streams, Java) enabling analysis of streaming EKG data.
- Developed ETL (Oracle PL/SQL) for data capture from EPIC Electronic Medical Record (EMR) system.

Maker Media Inc. | CONTRIBUTING AUTHOR May 2014 - Sep 2015
Employed by Maker Media to develop hardware projects to be used in articles for print in magazine, book, and web publication. Attended industry events, conducted interviews, and wrote articles and guides relevant to advertiser and subscriber interest.

- Developed hardware and software projects using embedded microcontrollers (C, Java, Assembler).
- Created introductory materials for readers interested in CNC machine end mills.

PPL Corporation | SENIOR ENERGY TRADING SOFTWARE DEVELOPER May 2006 - Jul 2011
Employed by the EnergyPlus trading floor to develop software for trading, analysis, and reporting on Energy Products. I directed and mentored software development resources to create multiple applications.

- Directly contributed to securing millions in profit by creating real-time trading software and data management applications (C# .Net/Perl/webMethods ESB).
- Designed, developed, and maintained data warehouses for generation and transmission pricing (Oracle, Perl, SQL Server Reporting Services, Informatica ETL, Microstrategy BI).
- Developed distributed computing scheduler to modeling transmission line usage (DAYZER, Shell, Perl, VB.Net/Oracle).

Publications, Patents, & Presentations

- Worman, Tyler S., McGuire, Gregory, and Peng, Huei (2021) AUGMENTED VEHICLE TESTING ENVIRONMENT (US Patent Application 7935-3161-US1). U.S. Patent and Trademark Office.
- Worman, Tyler S. and McGuire, Gregory (2021) SENSOR PACKAGE FOR INFRASTRUCTURE DATA COLLECTION (US Patent Application 63/200,098). U.S. Patent and Trademark Office.
- Worman, Tyler S., and McGuire, Gregory (2021) TRIGGER FOR USE WITH VEHICLE TESTING (US Patent Application 7935-3164-US1). U.S. Patent and Trademark Office.
- Worman, Tyler S. and McGuire, Gregory (2021) TEST FACILITY INFRASTRUCTURE CONTROL AND CONFIGURATION (PCT/US2021/17230). U.S. Patent and Trademark Office.
- Worman, Tyler S. (2020) ROADSIDE EDGE NODE CENTRAL MANAGEMENT (US Patent Application 7935-3160-US1). U.S. Patent and Trademark Office.
- Worman, Tyler S., Serzo, Edward, and McGuire, Greg (2020) "Mcity OS: New Cloud-Based Tools Simplify Complex and Repeatable Automated Vehicle Testing", Internet.
- Worman, Tyler S. "Mcity Data Capabilities", Automotive Futures, September 2019, Ann Arbor, MI
- Worman, Tyler S, "Waves in a Data Lake," Healthcare Data Warehouse Analytics Association (HDWAA), October 2015, Grand Rapids, MI
- Worman, Tyler S. (2015) "The Skinny on End Mills". *The Best of Make: Volume 2*
- Worman, Tyler S. (2015) "Internet Speedometer". *Make: Magazine: Volume 44*
- Worman, Tyler S. "Data Warehouse Processing Reduction Strategies When Extracting from EPIC Clarity," Healthcare DataWarehouse Analytics Association, October 2014, Portland, ME
- Worman, Tyler S. (2014) "The Skinny on End Mills". *Make: Magazine: Volume 40*
- Worman, Tyler S., and Moravian College. Honors. Computer Science. (2006) *Examining Network Routing Algorithm Efficiency*

Continuing Professional Development

NVIDIA DLI Fundamentals of Accelerated Computing with CUDA C/C++ | CERTIFICATION Oct 2020

NVIDIA DLI Fundamentals of Accelerated Computing with CUDA Python | CLASS Sep 2020

All Hands Active | BOARD MEMBER/ OPERATIONS MANAGER / MEMBER Oct 2013 - Current
As a board member of this 501c3 makerspace, I actively recruited members, volunteers, and donors. I helped to organize community classes, developed teaching material, and ran fundraisers.

Healthcare Data Analytics Association | MEMBER Jan 2013 - Feb 2018
Presented at multiple conferences on warehouse development techniques and Big Data topics.

MakeLehighValley | FOUNDER / MEMBER / FUNDRAISING Mar 2010 - Jul 2011
Developed membership, fundraised, and attracted corporate economic development sponsors to fund the makerspace.

ScrumMaster for Agile Software Development | CERTIFICATION Nov 2009

Association for Computing Machinery | MEMBER Sep 2002 - Sep 2016

Moravian College Association for Computing Machinery | PRESIDENT Sep 2004 - Sep 2006

Technical Highlights

Software | Airflow, Apollo CyberRT, Bazel, BigQuery, CircleCI, Cypress, DataGrip, Docker, Epic EMR, Eclipse, ER Studio, Git, Hadoop, Informatica ETL, Infosphere Streams, IntelliJ, Linux, MicroStrategy BI, Mocha, mySQL, Netezza, OpenAPI Spec, Oracle 12c, Pentaho, PostgreSQL, Pytest, PVCS, Qlik Sense, REDIS, ROS, RQ, SQL Navigator, Swagger, Visual Studio, webMethods, Unix

Programming Languages | ASM, Bash, C, C++ (Modern), C# .Net, ColdFusion, Java (Modern and Java FX), Javascript (Vue, Node.js, React, Typescript, jQuery), NZPLSQL, OpenGL, Perl, PHP, PL/SQL, Python, Rust, Spark, SQL, Streams Processing Language

Education

Moravian College | Bethlehem, PA Dec 2006
Bachelor of Science, Computer Science with Honors