# Timothy Mashon Arnold

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**Objective**

To aid in the development of computer technologies and provide engineering expertise through 11+ years of industry and manufacturing experience

**Education**

**Bachelor of Science, Chemical Engineering, December 2009**

University of Texas - Austin

**Experience**

**Apr 2022 – Sept 2024**

**Software Programmer**

**Company:** Independent

- Created Arbitrage Trading Software (Project Intercessor)
    - **Implemented** back-end MongoDB database, bespoke micro-service architecture based on worker threads and channel communications, Graph searching algorithms for efficient discovery of price disparity opportunities, Web User Interface for management and monitoring of workers (AngularJS Framework), real-time settings and configuration monitoring, Event-Based design through WebSocket monitoring
    - **Performed** performance profiling for bottleneck and memory leak detection and hardware analysis for software resource contention
    - **Learned** Object Oriented Programming Design Patterns, Git, JavaScript, and Solidity, MongoDB, AngularJS

**Mar 2021 – Apr 2022**

**Senior Engineer Team Representative**

**Company:** Samsung Austin Semiconductor

- **Supervised** technician team (10+) and engineering team (10+)
- **Targeted** key performance indices: Production Capacity, Chemical Consumption Reduction, Recipe Migration across disparate equipment types, and Tool-to-Tool variation reduction
- **Determined** Training Plans for equipping employees with skills for success, next generation equipment feature inclusion for utilizing wet etch equipment on forward-looking nodes (7nm and below)
- **Lead** disaster recovery initiatives and Team Incident Response in a 24/7 manufacturing environment and maintenance and integration of cutting edge UPW Filtration system (for 7nm and below)
- **Performed** high level quality monitoring of equipment and capacity calculations to meet future product demands

**2019 - 2020**

**Software Quality**

**Company:** Independent

- **Aided** in creation of algorithmic stock trading software (Project Overseer)
    - **Used** Selenium Framework for simulating inputs into web facing platform due to missing API access and NodeJS for back-end
    - **Communicated** edge case issues and website changes that prevented functionality to primary developer
    - **Tested** algorithm effectiveness for increasing base profit due to stock

volatility and performance and triaged bugs

**Aug 2010 – Mar 2021**   **Equipment Engineer 1 - 3, Senior Engineer**

**Company:** Samsung Austin Semiconductor

- **Lead new equipment technology integration**
  - **Integrated** first single-wafer SEMES Blue ICE SPM (Sulfuric Peroxide Mixture) equipment for US Memory Fabrication Line, TMAH (tetramethyl ammonium hydroxide)-based DNS SU equipment for US LSI Fabrication Line, M800 Automated FOUP Washers
  - **Created** training and documentation for SEMES Blue ICE SPM, SEMES IRIS, Brooks Automation M800
  - **Designed** TMAH dissolved oxygen concentration control system in conjunction with vendor
  - **Implemented** electrolyzed water single wafer equipment and maintenance plan, HEPA Filter Mini-environment Checking
- **Quality Troubleshooting Experience**
  - **Experimented** to determine the root cause of equipment process failures
  - **Performed** Recipe Isolation and Segregation Experience for determining root cause isolation, Parts and Equipment Segregation, and Disassembly analysis, Wafer Edge Damage Analysis causing wafer breakage, Metrology monitoring plan creation and monitoring, and Computer Performance Troubleshooting and Rebuilding (DMS M800, SEMES IRIS / Blue ICE)
  - **Developed** particle removal efficiency procedure for repeatably measuring process performance factors of hardware
- **Throughput, Consumption, and Capacity Management**
  - **Performed** Machine Cycle Charting for bottleneck analysis, Recipe Cycle Charting for tool-to-tool variation and hidden inefficiency discovery, track-in prevention management to improve n+1 capacity constraints, Implementation of SPM Recycling to reduce overall chemical consumption
  - **Created** streamlined procedures for preventative maintenance and troubleshooting guides for technicians and engineers
- **Yield Enhancement**
  - **Performed** Recipe Enhancement through nozzle configuration and pattern optimization (SEMES IRIS / Blue ICE), Part maintenance and Training creation for improved preventative maintenance procedures, Parameter Optimization to reduce incident defectivity, Etch Rate Optimization based on chemical parameter modification (e.g. temperature, concentration pour-up)
  - **Implemented** Part Testing regimen and New Parts: Filters (effective size), Valves (improved diaphragm), Nozzles (Spray), Pumps (White Knight -> IWAKI), Chucks, Solenoids
- **Vendor Management**
  - Primary Contact for SEMES Vendor relationship
    - Regularly schedule status meetings
    - Parts and Contract Negotiation
    - Conflict Resolution
  - Primary Contact for Brooks Automation

- Scheduled status meetings
- Support Contract Negotiation
- Vendor Training

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| Jun 2010 – Jun 2016 | **Developer (Chief Technology Officer)** |

**Company:** Jammio LLC

- **Created** Jammio Web Platform (Musician Gig Work Platform)
    - Platform written in PHP, Ruby on Rails
    - Triaged bugs
- **Performed** Customer Relationship Management duties: Interfacing one-on-one with customers, Performing ad campaigns and rewards programs to improve customer retention, Attending community music events to spread word of mouth and determine needs of the community

**Skills**

- **Troubleshooting**: Experiment Design, Part Failure Analysis, Root Cause Analysis (Fishbone, Five Why, etc)
- **Tool Efficiency Optimization**: SEMES IRIS12B, SEMES Blue ICE SPM, DNS SU Series, Brooks M800 FOUP Washer, KUKA KR Quantec
- **Programming**: Javascript (CommonJS, NodeJS) - 2 years, Solidity - 1 year, Go - 1 year
- **Software**: Microsoft Office Suite (Word, Excel, PowerPoint) and Open-Source Alternatives (OnlyOffice, LibreOffice) - 19+ Years, Freeplane (mindmapping) - 2+ Years, Various Internal Quality Monitoring Systems (Yield Management Systems, SiMAX, GPM) - 11+ Years, KUKA Teaching Pendant Manipulation - 6+ Years
- **Strategic Thinking, Collaborative Leadership**
- **Cleanroom Environment Experience** - 11+ Years
- **Equipment Experience**: Assay and Sample Preparation, Vapor Phase Decomposition ICPMS result analysis, Wafer Map Analysis, Wafer Edge Damage Detection and Analysis

**Volunteer Work**

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| Feb 2024 - Present | **Volunteer** |

**Organization:** Fedora (Linux) KDE

- Perform Quality Testing of Software Updates
- Triage Bugs and Issues
- Organize Meetings for Special Interest Group
- Update Composition Groups for Future Releases
- End-User Support

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| Jan 2024 - Present | **Volunteer** |

**Organization:** Church of Christ at East Side Technology Support

- Interface one-on-one with Clients to address technical issues
- Provide consulting for technology issues, documentation and classes for computer skill improvement, on-site technical support for events held in the facility

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| Jun 2022 - Present | **Volunteer** |

**Organization:** Central Texas Food Bank

- Provide physical labor for distribution of food to clients
- Interface with clients to support information gathering and addressing individual needs
- Perform food deliveries to clients

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| **Recommendations** | Available upon request |
| **Employability Status** | US Citizen / Permanent Residence |