

RIGEL G. ARCAYAN
Master Equipment Technician | CMP Systems & Infrastructure Specialist
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EXECUTIVE PROFESSIONAL PROFILE

Accomplished Master Equipment Technician with 23 years of foundational experience at Samsung Austin Semiconductor and over 25 years spanning semiconductor processing, military equipment systems, and cloud-hosted infrastructure. Original charter technician who co-built Samsung's CMP department from ground zero, debugging initial toolsets and authoring 300+ SOPs. U.S. Patent holder (US-6607423) in Chemical Mechanical Planarization process technology. Deep technical mastery across AMAT Mirra, Reflexion LK, Ontrak, Westech, and Speedfam equipment. Expert in advanced Root Cause Analysis (RCA, FTA, FMEA, TRIZ), automated event-log scripting, and self-hosted cloud environments (GCP, Docker, Linux, Networking).

CORE TECHNICAL COMPETENCIES

CMP Tool Systems: AMAT Mirra, Mirra Mesa, Reflexion LK (>50 units modernized); Ontrak Synergy / DSS Cleaners; Westech (2-Platen), Speedfam | **U.S. Patent:** US-6607423

Advanced Problem Solving: Root Cause Analysis (RCA), Fault Tree Analysis (FTA), Failure Mode & Effects Analysis (FMEA), TRIZ Contradiction Matrix

Systems & Cloud Tech: Google Cloud Platform (GCP), Docker, Ubuntu/Linux, Hyper-V, Cloudflare, Nginx Proxy Manager, Windows Server, SSD Upgrades

Databases & Applications: PostgreSQL, MariaDB, pgAdmin, phpMyAdmin, Docmost, OpenProject, OpenEMR, Zammad, Self-Hosted WordPress

PROFESSIONAL EXPERIENCE

Master Equipment Technician (CMP Systems & Hardware Specialist) July 20, 1998 – July 20, 2021
Samsung Austin Semiconductor – Austin, TX (Fab1 & Fab2)

- **Ground-Zero Department Build-Up:** Selected as one of the original 4 equipment technicians hired to build the CMP department from scratch, leading hardware debugging and bring-up for initial Mirra and Ontrak tool lines.
- **Hardware Modernization & Retrofits:** Upgraded and retrofitted 50+ LK equipment tools with industrial SSD drives and re-routed log storage to solid-state storage, dramatically increasing system reliability, I/O performance, and log retrieval speeds.
- **Automated Tool Health Inspections:** Created custom Log Parser scripts to automate daily Windows event log inspections across CMP equipment, proactively targeting high-risk tools for immediate health checks and preventive maintenance.
- **Systematic Root Cause Analysis:** Solved complex, chronic CMP equipment faults by applying advanced analytical frameworks, including Root Cause Analysis (RCA), Fault Tree Analysis (FTA), Failure Mode & Effects Analysis (FMEA), and the TRIZ matrix.
- **Infrastructure & Disaster Recovery Ownership:** Owned and managed the CMP Windows Server infrastructure, implementing disk imaging deployment protocols for fast equipment disaster recovery and system restoration.
- **Technical Knowledge Architecture:** Authored over 300 SOPs and technical How-To guides. Founded the CMP Department Wiki, which was scaled into the core CMP SharePoint platform.

Manufacturing Equipment Technician 1996 – 1998

Advanced Micro Devices (AMD) – Austin, TX

- Starting with zero prior CMP experience, rapidly mastered chemical mechanical planarization technology through hands-on troubleshooting and maintenance on 2-Platen Westech CMP equipment and Speedfam polishers.
- Achieved full technical proficiency across wafer polishing mechanics, slurry delivery, and electro-pneumatic subsystems.

Bradley System Mechanic (MOS 63T) & Fleet Recovery Specialist 1992 – 1996

United States Army – HQ III Corps (Fort Hood, TX) & 2ID 5/17th Cavalry (Camp Garry Owen, Korea)

- **HQ III Corps (1993 – 1996):** Assigned to HQ III Corps following overseas service; maintained high-priority command vehicle assets, including the commanding Top General's M998 HMMWV, becoming proficient in M998 mechanical and electrical upkeep.
- **2ID 5/17th Cav Hardship Tour (1992 – 1993):** Completed a 1-year hardship tour in South Korea as a key member of the 5/17th Cavalry Recovery Team, operating and maintaining the heavy M88 Recovery Vehicle and Bradley Fighting Vehicles (MOS 63T).

CONTINUOUS TECHNICAL & PERSONAL DEVELOPMENT (POST-RETIREMENT: 2021 – PRESENT)

- **Cloud Infrastructure & Self-Hosting Lab:** Actively deploying, configuring, and managing containerized applications on GCP and Ubuntu Server via Docker. Skills include GCP firewall/networking troubleshooting, Cloudflare DNS/security, Nginx Proxy Manager, Windows Server Hyper-V, PostgreSQL, MariaDB, pgAdmin, and phpMyAdmin.
- **Self-Hosted Platforms Deployed:** Successfully self-hosts and maintains production-grade enterprise instances including Docmost, OpenProject, OpenEMR, Zammad, Home Assistant, and a personal WordPress blog migrated to GCP (originally active since 2006).
- **AI Knowledge Architecture & Synthesis:** Formulated an extensive, structured repository of over 4,500 continuous AI technical/analytical interactions (cataloged sequentially from AI-00001 to AI-04500+ in Docmost) for research and system optimizations.
- **Psychology & Behavioral Studies:** In-depth study of existential psychotherapy, depth psychology, and human behavior through the works of Irvin Yalom, Alfred Adler, Carl Rogers, and Carl Jung.
- **Endurance Fitness & Athletic Conditioning:** Maintains exceptional physical endurance and discipline, completing 2.4-mile non-stop open/pool swims and averaging 4,000 miles per year in long-distance gravel cycling since 2021.

EDUCATION, CERTIFICATIONS & PATENTS

U.S. Patent US-6607423: Chemical Mechanical Planarization / Polishing Apparatus & Method Issued Aug 2003

Bachelor of Science in Electrical Engineering (BSEE) – Cebu Institute of Technology Earned 1988

Licensed Amateur Radio Technician (FCC) – Call sign KC5OZQ Issued 1990s