# Samir Mukhida

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## SUMMARY

Samir is an engineering professional and pioneer in applying laser-induced fluorescence (LIF) instrumentation for ultrapure water analytics in pharmaceutical applications. Samir is currently pursuing a MS in Computer Science from Georgia Tech.

## EXPERIENCE

### ROCHE GENENTECH | CONTRACTOR – QC/MES SUPPORT

Feb '22 - Present | Oceanside, CA

- Facilitated beta field testing of new product accessory. Trained local field service engineer for maintenance and audits.
- Work with Mettler-Toledo Thornton to integrate instruments into SCADA system and perform data analysis using Seeq.

### METTLER TOLEDO | ADVANCED ANALYTICS DEVELOPMENT ENGINEER

Sep '21 - Present | San Diego, CA & Boston, MA (Remote)

- Hybrid R&D and Marketing role, using software development and data analytics skillset to advance strategic growth projects across the entire Thornton pure water analytics instrumentation portfolio. Develop technical strategies influencing organization-wide thought leadership.
- Presented collaborative data analytics work with Roche Genentech at Seeq Conneqt and PDA Microbiology conferences [2].
- Provide third-tier support for RMS (real-time microbial system) software, data integration and industrial communication.
- Primary test suite developer for RMS product software since 2014, with focus on OSI layer 4 and higher.
- Implemented and maintained time-series data analytics workflow using SaaS tools to enhance scientist productivity.
- Designed and maintained bespoke, on-premises and cloud-based WAMP/LAMP stack servers for Dev and Customer Ops.
- Worked with R&D and Marketing teams in the US and China to design the GUI prototype for next-generation RMS analyzer.
- Lead software architect, developer, and interim product manager for agile “skunkworks” R&D team working on new product in data/industrial controls space.

### METTLER TOLEDO | GLOBAL APPLICATIONS ENGINEER, TECHNOLOGY & APPLICATIONS CONSULTANT (TAC)

Jul '17 - Sep '21 | Los Angeles, San Diego, CA & Boston, MA (Remote)

- Worldwide Subject Matter Expert for RMS (real-time microbial system) implementation in pharmaceutical manufacturing, leveraged by local marketing organizations along with producing organization to solve critical implementation challenges, participate in the sales process, provide training, data analysis, and integration support for strategic global accounts.
- Trained TAC team and authored product service manual and troubleshooting guides.
- Transferred knowledge and data from application feasibility studies and technical literature to product development teams.
- Participated in sustaining engineering and targeted product/process improvement projects.
- Maintained knowledge of competitive and complementary technologies and solutions.
- Working with leading third-party microbiology consultant, specified and designed injection system test apparatus hardware at Amgen which was adopted as industry standard for LIF-based bioburden analyzer method validation.

### INSTANT BIOSCAN, METTLER TOLEDO | SERVICE MANAGER, TECHNICAL SERVICE MANAGER

Feb '15 – 'Jul 17 | Tucson, AZ

- Field and depot service program management. Supervised depot calibration and field service engineers.
- Primary integration support for several top biopharmaceutical and personal-care companies, including project management for worldwide deployment and validation efforts at Amgen.
- Member of the Management Committee, advising and reporting to C-level executives and investors. Instrumental in supporting company growth and eventual $30M asset sale of Instant BioScan to Mettler-Toledo Thornton.
- Assisted in re-branding and corporate harmonization efforts post acquisition, and onboarding/training of product manager.
- Technical adviser to product manager, generating detailed technical manuscripts including whitepapers, manuals, SOPs, IQ/OQ/PQ, as well template marketing material. Developed GUI simulator software for RMS product.
- Enhanced product's LabVIEW and Windows Embedded-based UI/UX, including new functionalities for field service.
- Developed and led global sales and service training programs and product launch tours in the US, China, and Switzerland.

### INSTANT BIOSCAN | ENGINEER

Sep '13 – Feb '15 | Tucson, AZ

- Early member of this startup, which developed, manufactured, sold, and serviced RMS (real-time microbial system) instruments—process analyzers which enumerate microbial cells within ultra-pure water using LIF optical methods.

## SKILLS

### TECHNICAL SKILLS

• Python • Visual Basic • Perl • C/C# • Java • SQL • LabVIEW • Android Studio • Unity • Linux • Shell/Batch
• SCADA • PLC • Modbus • MS Office • HTML • CSS • WordPress • Git • Docker • Arduino • GIMP • Hardware • Hand Soldering

## SOFT SKILLS

•Service •Product Management • Research • Heuristics • Wireframes & Prototypes • Mergers & Acquisitions • Training • Leadership •United States Pharmacopoeia (USP) • ISO 9001, 13485 • United States FDA 21.CFR.11 • French • Agile • Rapid Learning Cycles

## TECHNICAL PROJECTS

**MANUFACTURING TEST STAND** | Python (Pandas, NumPy, Matplotlib), C#
March '23 – Ongoing | METTLER TOLEDO
Enhanced manufacturing/calibration visual analytics and reporting to support product lifecycle management (PLM).

**WATER SYSTEM SCADA & HISTORIAN** | Python (various libraries), ModbusTCP, RS-485, SQL, ODBC
June '22 – Ongoing | METTLER TOLEDO
Implemented Secure Control and Data Acquisition (SCADA) system to monitor instrument data from R&D facility water systems in the US and India. Linked time-series SQL database to custom and Seeq SaaS tools for data visualization/analytics.

**PRODUCT TRACKING DATABASE** | Python (open-cv, re), Tesseract OCR, Microsoft (Power Automate, Azure)
April '21 – Nov '21 | METTLER TOLEDO
Built modules and end-to-end automation to extract, clean, and store product information from manufacturing documentation, service reports, and diagnostic files to support data-driven product management.

**DATA ANALYSIS TOOLS** | Python (Pandas, NumPy, Matplotlib, Tk)
Mar '18 – May '20 | METTLER TOLEDO
Built a fully-documented visual analytics GUI in Python using ubiquitous data science libraries. Used by other team members and forked by R&D for their analytical needs. Leveraged fbProphet library in codebase for tunable time-series modeling and forecasting.

**LABORATORY AUTOMATION** | Python (Tk, open-cv), VNC, ModbusTCP
Oct '19 – Mar '21 | METTLER TOLEDO
Built a fully-documented remote control driver for analyzer product, and GUI application to automate lab experiments.

**PRODUCT DATA INTEGRITY** | 21 CFR Part 11, Windows Embedded Standard 7
Dec '18 – Mar '19| METTLER TOLEDO
Specify, develop, and test product firmware with enhanced data Integrity features for 21 CFR Part 11 customer compliance.

**GUI SIMULATOR** | Visual Basic
Nov '16 – Dec '19 | METTLER TOLEDO
Simulation application/installer for analyzer product's GUI, used on products at tradeshows and sales laptops around the world.

## RESEARCH

**ARIAS LAB** | MIDWESTERN U, COLLEGE OF PHARMACY
Sep '11– Apr '12 | Glendale, AZ
Drug discovery research involving β4 nAChRs, 18-MC, and CHANTIX (varenicline). Administered cocaine injections to test animals and conducted motor-physical data collection and analysis in Prism [1].

**RHOADS LAB** | U ARIZONA, COLLEGE OF AGRICULTURE & LIFE SCIENCE
Aug '09 – May '10 | Tucson, AZ
Molecular and computational biology educational curriculum development as part of the Genomics Education National Initiative.

## EDUCATION

**GEORGIA INSTITUTE OF TECHNOLOGY**
MS–COMPUTER SCIENCE
In Progress (Expected Dec '23) | Atlanta, GA
Interactive/Artificial Intelligence

**THE UNIVERSITY OF ARIZONA**
BS—MOLECULAR/CELLULAR BIOLOGY, PLANT SCI
Dec '10 | Tucson, AZ
Dean's List Honorable Mention, President & AIMS Awards

## CERTIFICATION

**FEDERAL COMMUNICATIONS COMMISSION (FCC)**
TECHNICIAN–AMATEUR RADIO (HAM)
KI7PUB

**FEDERAL AVIATION AUTHORITY (FAA)**
REMOTE PILOT (14 CFR PART 107)
Small Unmanned Aerial – General (Drone)

## PUBLICATIONS & TALKS

[1] S. Mukhida & H. Arias (April 2012). Role of the β4 nicotinic receptor subunit in the anti-addictive activity of 18-methoxycoronaridine. Abstract & Poster at *Federation of American Societies for Experimental Biology*, San Diego.

[2] M. Russ & S. Mukhida (May 2022). Data Analysis for an Online Water Bioburden Analyzer. Talk and Presentation at *Seeq Conneqt*, Austin. Poster at *Parenteral Drug Association (PDA) Microbiology*, Washington.