MATTHEW FONG, PHD

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Portfolio: https://mfong955.github.io/technical-writing-examples/

SUMMARY

Technical Writer with **3+ years at AWS creating AI/ML developer documentation, API references**, user guides, and training materials for AI/ML services and **building AI-powered tools for streamlining documentation workflows**. Ability to mentor teams, establish documentation standards, and influence cross-functional stakeholders across global organizations. PhD in Physics with **7+ years publishing scientific papers** with expertise translating complex technical concepts for diverse audiences.

TECHNICAL SKILLS

Documentation & DocOps: Developer Documentation (APIs, SDKs), Information Architecture, Content Strategy, Docs-as-Code Workflows, Style Guides, XML Structuring, Documentation Efficiency Metrics
AI-Ready Documentation: LLM Integration, Claude, MCP Protocol, RAG Pipelines, Structured Content for AI, Automated Documentation Workflows, Context Management Systems
Writing / Communication / Domains: AWS (SageMaker, Bedrock, S3), AI/ML, User Guides, API References, Tutorials, Style Guide Compliance, Data Science, Astrophysics Journals, Conferences
Technical: Python (7+ years), SQL, Git/GitHub, API Integration, Markdown, Quip, VS Code

PROFESSIONAL EXPERIENCE

AI/ML Technical Writer

Amazon Web Services (AWS)

2022 – Present

- Identified onboarding friction points for all of AWS docs, partnered cross-service to discuss and propose solutions, driving documentation improvements that **impacted docs AWS-wide**
- Led org-wide documentation initiatives, **coordinating across multiple teams to achieve 100% milestone completion ahead of deadlines**
- Developed meaningful and robust AI agent workflows using Python and MCP, resulting in **time saved of more than 30%** on first and post-review drafts
- Created and taught AI training courses for AWS employees on prompt engineering and tool development; post-course surveys showed **more than 80% adoption rate** with **above 30% productivity gains** reported by participants
- Analyzed documentation health metrics data using SQL and Python, identified critical data quality failures and seasonal trend signals, contributing to **strategic reallocation of documentation priorities** and **restrategization of data collection practices**
- Lead role in development of internal **AI documentation tool; adopted as an AWS initiative**

Postdoc & PhD Researcher in Quantitative Field (Physics & Astrophysics)

Shanghai Jiao Tong University & University of Texas at Dallas

2014 – 2022

- Published **4 first-author research papers** in top astrophysics journals, translating complex statistical analyses into clear, accessible scientific writing
- Presented research findings at **5+ international conferences**, adapting technical content for audiences ranging from specialists to general academic audiences
- Mentored graduate students on scientific writing and technical communication best practices

EDUCATION

Ph.D. in Physics — University of Texas at Dallas, 2019
Postdoctoral Fellow in Astrophysics — Shanghai Jiao Tong University, 2022

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AI TOOLS CREATED

AWS Projects

Documentation Drafting Pipeline: Designed multi-stage AI system using Claude and MCP that transforms technical inputs (PRFAQs, design docs, API specs) into customer-facing documentation. Features include:

- Context management to break large inputs into docs-related summarization (avoiding context overflow)
- Fact-checking pass against source documents
- Editorial review pass for AWS style and clarity
- MCP integration to convert drafts to Quip for team review
- Feedback loop that ingests reviewer comments, generates updated drafts with highlighted changes and explanations
- One-shot prompting for XML output in alignment with AWS formatting

Ticket Resolution Workflow: Built agentic system that takes ticket URLs as input and automates analysis and resolution:

- Breaks down ticket requirements and assesses actionability
- Generates action plans for immediate fixes and longer-term improvements
- Multiple output modes: markdown/Quip drafts, direct XML source file updates with searchable flags, and/or chat-based suggestions
- Produces comprehensive summary on documentation update with notes to highlighted changes for diff verification

Promotion Documentation Assistant: Built personal productivity tool that transforms unstructured accomplishment notes into structured promotion materials:

- Ingests messy notes from manager 1:1s and project updates
- Applies knowledge of promotion document formats and strategies with few-shot examples
- Generates organized performance snapshots and success stories
- Streamlined promotion preparation process for my review before sending to manager

Personal Projects

- **Reusable Project Templates:** Iterated on project templates optimized for accelerated AI tool development, consistent agent rules and behaviors, context management system keeping AI focused and avoids bloat
- **Novel Writing Assistant:** Long-term multi-turn conversation system managing tool for long-form authoring with AI-powered organization, context retrieval, memory handling, and output restraint to prevent bloat
- **Data Science Learning Project:** Built ML pipelines using public data, to learn the current industry AI tools and best practices for educational purposes
- **Table Top Experience:** Developing text-based collaborative storytelling application for group play