Bibas Kandel

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Education

The University of Southern Mississippi **May 2027**

B.S. Computer Science; Minors: Mathematics, Information Technology &Economic Data Analysis *GPA: 4.00/4.00*

- **Awards:** *Freshman* Excellence Award (Full Tuition); President's List (Fall 2023–Present)
- **Relevant Coursework:** Data Structures, Algorithms, Operating Systems, Discrete Mathematics, Linear Algebra, Probability & Statistics,

Skills

- **Languages:** Python, C++, C#, SQL, Bash, Dart (Flutter), JavaScript/TypeScript
- **Frameworks:** Flask, Next.js, FastAPI, Flutter, Dask, Polars, PyTorch
- **Cloud/DevOps:** AWS (Bedrock, Lambda, SageMaker), Azure (VMs, Monitor), Google Cloud (Run, Jobs), Docker, Terraform, CI/CD, GitHub
- **Data Engineering:** Icechunk, Zarr, Xarray, OpenSearch, Vector Databases, PostgreSQL, MongoDB

Experience

Software Development Associate **Jan 2026 – Present**

ArroyoDev *Remote/Hattiesburg, MS*

- Engineered a secure **cross-platform 'User Impersonation'** diagnostic ecosystem for the **Illumibot** product.
- Developed a **Flutter** mobile module enabling admins to mirror user sessions without corrupting live telemetry, utilizing ephemeral admin tokens for automatic session restoration.
- Built a **Vite/React** support workflow allowing admins to generate QR codes from tickets; implemented deep-linking to instantly launch mobile impersonation sessions from the web dashboard.
- Optimized IoT dashboard performance and resolved UI latency issues within the **Kivy**-based homepage.

Research Assistant (Data Engineering & ML) **May 2025–Present**

Institute for Advanced Analytics and Security *Hattiesburg, MS*

- Architected a cloud-native data pipeline to convert **NOAA WOD** datasets to **Zarr** format using **Icechunk** and **Dask**, enabling performant access via **ArrayLake**.
- Developed a **Natural Language Interface** allowing researchers to query multi-terabyte datasets in plain English; achieved data retrieval of **50 million rows** in minutes via CSV/Parquet exports.
- Implemented **Polars** and **Dask** for lazy-loading operations, increasing data retrieval speed by **80%** compared to standard Pandas implementation.
- Designed an async execution engine using **Google Cloud Run Jobs** to offload heavy aggregation queries from the UI, generating on-demand **Colab** notebooks for instant data visualization.

Projects

Civic Policy AI Engine | *AWS Bedrock, Lambda, OpenSearch, Next.js* **Nov 2025 – Present**

- Led a 6-person team to build a production-grade RAG system for a **State Government Agency**, processing **700+ policy documents**.
- Leveraged **Amazon Bedrock** foundation models and the **Continuous Latent Reasoning (CLARA)** methodology on **SageMaker** notebooks to maximize context retention, significantly outperforming standard chunking strategies.
- Architected a fully serverless pipeline using **OpenSearch (Vector Store)** and **AWS Lambda** behind API Gateway, delivering cited answers with **less than 10s latency** to a **Next.js** chat interface.
- Engineered a custom citation enforcement layer to map LLM outputs directly to source statutes, ensuring 100% auditability for legal purposes.

Exium – Secure Code Assessment Platform | *Python, Docker, Azure, PostgreSQL* **Dec 2024 – April 2025**

- Self-hosted the **Judge0** execution engine on **Azure VMs** with Docker; enforced strict CPU/memory caps to safely grade student code submissions at scale.
- Implemented browser lockdown and session monitoring, reducing academic integrity violations by **75%**.
- Deployed on **Azure VMs** with load balancing to support **100+ concurrent users**, achieving **99.9% uptime** during critical high-traffic exam windows.
- **Awards:** $500 Checkpoint SeedFund; 1st Runner-up, Golden Idea Pitch ($1500).