

# Carl Broker

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## TECHNICAL SKILLS

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**Languages & Frameworks:** Python, PyTorch, Scikit-learn, Hugging Face Transformers, LangChain

**AI/ML:** LLMs, Multi-Agent Orchestration, NLP, RAG, Document Processing, Transfer Learning, OCR

**Platforms:** IBM watsonx Orchestrate Agent Developer Kit, IBM Code Engine, Docker, PostgreSQL, Milvus, Git

## EXPERIENCE

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**Advisory AI Engineer**, IBM, Customer Success Engineering May 2025–Present

- Design and deploy multi-agent systems using IBM watsonx Orchestrate and the Agent Development Kit, orchestrating specialized sub-agents for business intelligence and document processing workflows.
- Architect deployment pipelines on IBM Code Engine with PostgreSQL backends, integrating API services, Excel processing, and automated document analysis for enterprise clients.
- Build document processing solutions combining vision-language models with PDF extraction tools, enabling automated key-value extraction and orientation detection.

**AI Engineer**, IBM, Client Engineering 2022–2025

- Delivered client-facing generative AI solutions using Large Language Models, translating business requirements into production-ready enterprise applications.
- Built RAG systems with multilingual embedding models and Milvus vector databases for enterprise knowledge management.
- Developed testing frameworks and evaluation harnesses to validate agent routing logic and model performance.

**Research Data Scientist**, General Dynamics IT, EPA (Federal Contractor) 2020–2022

- Deployed Tesseract OCR across a large document database, automating text extraction from legacy records.
- Trained and deployed NLP document classifiers via ensemble learning (PyTorch RoBERTa transfer learning, Scikit-learn logistic regression).
- Computed cosine similarity with Hugging Face Transformers to identify duplicate and related documents.

**Data (Policy) Analyst**, State of Washington, Healthcare Authority Mar–Oct 2019

- Refactored data processing scripts to produce state/federal dataframes used to audit Washington’s multi-year healthcare expansion.

**Senior Data Analyst**, Johns Hopkins Health System, Baltimore, MD 2016–2019

- Produced scheduled and ad-hoc analytical reports for executive leadership, supporting strategic decision-making across departments.
- Redesigned a case management system to accommodate increased patient volume and growing operational demands.
- Partnered with IT departments and third-party vendors to integrate data sources and streamline reporting pipelines.

**Research Assistant**, Johns Hopkins Medical Institute, Baltimore, MD 2015

- Led startup of a multi-year NIH-funded clinical research study; implemented a cloud-based data-entry system and managed two research interns.

**Post-Bacc. Research Fellow**, NIDA, Behavioral Neuroscience Research Branch 2012–2014

- Investigated neural mechanisms of motivation and learning using PCA on electrophysiological data and bivariate timeseries analysis.
- Co-authored 3 peer-reviewed papers, [published on PubMed](#).

## EDUCATION

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**M.S. in Government Analytics**, Johns Hopkins University, Washington, D.C. 2022

**Post-Bacc. IRTA Research Fellowship**, National Institutes of Health, Bethesda, MD 2014

**B.S. in Psychology**, The College of St. Scholastica, Duluth, MN 2011