Skills & Projects

Product Development:

Can translate scientific research needs into well-architected, modular software systems.

1. **AI & ML Product Development**
    - Designing AI features with product thinking
    - Applying AI components where they improve workflow efficiency or insight
    - Projects:
        - AI Products
        - V

2. **Tool & Workflow Design**
    - Design tools that simplify complex scientific analyses
    - Transforming research workflows into modular, reusable pipelines
    - System design for computational analysis tools
    - Projects:
        - Data Analysis Tool
        - V

3. **User Centric Interface Design**
    - Translated stakeholder needs into clear technical design decisions
    - Designing UI/UX for scientific applications
    - Projects:
        - Data Analysis Tool
        - Redesigns

4. **Full Product Lifecycle**
    - Functional prototypes, deployed apps, and proof-of-concept tools
    - Projects:
        - Data Analysis Tool

Technical Foundations:

Can apply core tools, languages, and scientific workflows to build robust computational applications.

1. **Bioinformatics**
    - Developed and automate pipelines using **Python, R, Linux/Unix, Perl, Bash** and **Java (**Data Analysis Tool)
    - Experienced with **RNA-Seq** and **Single-Cell Sequencing** analysis workflows
    - Experienced with **TaqMan chemistry and** its design principles
    - ML pipelines for cell morphology (Internship project)

2. **AI & ML Integration**
    - Integrating NLP, ML, and RAG pipelines into analysis tools (Data Analysis Tool , AI Products)

3. **Full Stack App Development**
    - **FastAPI:** modular backend APIs (Data Analysis Tool, V)
    - **Streamlit:** interactive scientific apps (Data Analysis Tool)
    - **React:** responsive frontend interfaces for research tools (V , Redesigns)

4. **Systems & HPC**
    - HPC job scheduling (SLURM/PBS), debugging, performance optimization
    - Linux (RedHat/CentOS) system management
    - C/C++ compilation for scientific software, building binaries

5. **Version Control & Collaboration**
    - Git, Docker

Goal Statement

I am interested in developing AI-supported tools that make complex workflows easier to understand and use. With a background in bioinformatics and experience working across design and technical domains, my goal is to contribute to AI product development by focusing on problem framing, usability, and practical implementation. I aim to work on products where thoughtful design and technical feasibility come together to support real user needs.

Core Focus

- AI product concept development and usability
- Applied AI systems and prototyping
- Technical and data literacy for collaboration
- Clear communication across disciplines

Skills & Projects

AI Product Concept Development & UX Strategy

Problem framing and design

- Human–Computer Interaction (HCI)
- Interaction design and workflow design
- Usability analysis and heuristic evaluation
- User research and scientific workflow mapping
- Information architecture for complex tools
- Human–AI interaction principles

Applied in:

- UCSC Genome Browser navigation redesign
- NCBI landing page UX case study
- AI product concept explorations

Design & Prototyping

- Wireframing
- Low- and high-fidelity prototyping
- Data visualization design
- Design systems

Tools: Figma, Framer

AI Product Development

(Applied implementation for concept validation)

- Prompt engineering
- Natural Language Processing (NLP)
- Retrieval-Augmented Generation (RAG)

- Agentic workflows
- Multimodal AI (text, image, speech)

Applied in:

- Meta Data Project
- Create Your Own ChatGPT
- Image Caption Generator
- GenAI Meeting Assistant
- Voice Assistant

Technical & Data Literacy

Front-End & Scripting

- HTML, CSS, JavaScript, React
- Python, Bash, Git

Back-End & APIs

- FastAPI, SQL
- Linux
- Java, Perl, R

Data Analysis & Machine Learning

- NumPy, Pandas, Matplotlib
- SciPy, scikit-learn
- Scanpy
- Streamlit

DevOps

- Docker, Kubernetes

AI Platforms & Tools

- Hugging Face
- Gradio
- IBM Watson
- Speech-to-Text / Text-to-Speech (Babel)
- Flowise

Communication & Collaboration

- Cross-functional collaboration
- Communicating technical concepts to non-technical stakeholders
- Translating user needs into system requirements

Communication Skills -

Interpersonal

- Collaborate effectively on cross-functional teams
- Communicate clearly with both technical and non-technical stakeholders

Product Development -

Human–Computer Interaction (HCI)

- Interaction design and cognition-driven workflows
- Usability analysis and heuristic evaluation
- User research and scientific workflow mapping
- Information architecture for complex tools
- Human–AI interaction principles

Design & Prototyping

- Figma, Framer:
    - (Figma)
- Wireframing; low- and high-fidelity prototyping:
- Data visualization design:
- Design systems:

Technical Skills -

Technical Literacy

- **Front-End & Scripting:** HTML, CSS, JavaScript, React, Python, Bash, Git
    - Internship (HTML/CSS/Javascript)
- **Back-End & Tools:** FastAPI, Linux, SQL, Java, Perl, R
    - Meta Data Project (FastAPI/SQL)
- **Data & Machine Learning:** NumPy, Pandas, Matplotlib, SciPy, scikit-learn, Scanpy, Streamlit
    - Data Analysis Project
- **DevOps:** Docker, Kubernetes:
    - Meta Data Project (FastAPI/SQL)

AI & Intelligent Systems

- Prompt engineering:
    - Meta Data Project

- Natural Language Processing (NLP):
    - Meta Data Project
    - Create Your Own ChatGPT

- Retrieval-Augmented Generation (RAG):
    - Meta Data Project
    - RAG

- Agentic frameworks:
    - Meta Data Project

- Hugging Face:
    - Image Caption Generator

- Gradio:
    - Image Caption Generator
    - Create Your Own ChatGPT
    - Voice Assistant
    - Gen AI Meeting Assistant
    - RAG

- IBM Watson:
    - Voice Assistant
    - Gen AI Meeting Assistant

- Speech to Text / Text to Speech:
    - Babel

- Flowise