Soren Larsen

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Education

- **University of California, Santa Cruz** *Santa Cruz, CA*

  M.S. in Natural Language Processing, Expected Dec 2025

  B.S. in Computer Science, June 2023

Skills

- **Programming Languages:** Python, JavaScript, TypeScript, Dart, Java, C/C++, Swift, SQL, Bash
- **Machine Learning and AI:** PyTorch, scikit-learn, Hugging Face Transformers, LangChain, AutoGen, CrewAI, spaCy, NLTK
- **NLP Techniques:** Token Classification, Sequence Labeling, Slot Tagging, NER, Relation Extraction, Prompting (Few-Shot, Cloze, Instruction), Fine-Tuning, RAG, GloVe, TF-IDF, Bag-of-Words, N-grams
- **Frontend/Backend Tools:** React, Flutter, Node.js, Flask, Express.js, Firebase, Docker, REST APIs
- **Development Practices:** Agile (Scrum), TDD, CI/CD, Prompt Engineering, Barista, XCTest, Espresso
- **Cloud & Infrastructure:** Google Cloud Platform (GCP), Firebase, Docker, GitHub Actions, ChromaDB

Experience

- **AI & Software Systems Engineer** June 2025 – Present

  Gray Whale *Remote*
  - **Backend Systems & Automation**: Supporting the development of internal tools, automation systems, and backend pipelines for Gray Whale's AI products.
  - **Infrastructure Design & Tooling**: Contributing to core systems involving data processing, source code, communications, and marketing tech infrastructure.
  - **Cross-Disciplinary Support**: Working across technical and creative domains to assist in product development, scalability, and team workflows.
- **AI Engineer & Product Consultant** May 2025 – Present

  Onda Sports *Remote*
  - **LLM-Powered Assistant R&D**: Experimenting with techniques like prompt engineering and RAG to enhance forecasting, personalized surf spot recommendations, and in-app chat functionality.
  - **Product Feature Prototyping**: Designing and testing new mobile and backend features in collaboration with product and design teams.
  - **Infrastructure & Documentation Design**: Refining system architecture based on recent academic research, while documenting design choices to support future scale and iteration.
  - **Marketing Strategy Advising**: Contributed to early-stage marketing plans and helped catalyze the onboarding of a summer intern team to support content, outreach, and growth.
- **Software Developer & Consultant — Agile Methodology Specialist** April 2024 – June 2025

  Boardal *San Diego, CA*
  - **Full-Stack Product Development**: Contributed across the stack to expand app functionality and support the growth of Boardal, a surf gear marketplace platform with over 20,000 users. Led feature development with a focus on usability, scalability, and performance.
  - **GPT-Powered Marketing Automation**: Built and deployed custom GPT tools to streamline marketing outreach, automate customer communication, and integrate with spreadsheet systems for real-time team collaboration.
  - **Agile Transformation and Team Enablement**: Led adoption of Agile methodologies to improve cross-functional collaboration, speed up release cycles, and align development efforts with user feedback and business goals.

Projects

- **NLP for Research – Capstone with CarbonBridge** May 2025 – Present

  Baskin Engineering, UCSC — Partner: CarbonBridge
  - **NLP-Powered Research Acceleration**: Developing tools to automate literature reviews and extract structured data from scientific documents, aiding CarbonBridge in advancing sustainable fuel innovation.
  - **Information Retrieval and Document Parsing**: Implementing NLP techniques for parsing, entity extraction, and semantic search across technical texts related to carbon-neutral maritime transport.
  - **Academic-Industry Collaboration**: Capstone project integrating academic research with real-world use cases, conducted in partnership with CarbonBridge through the UCSC NLP M.S. program.
  - **Link**: https://www.santacruzworks.org/news/how-a-chance-encounter-became-a-game-changing-research-partnershi
- **Multi-Agent AI System for Real-Time Media Analysis** April 2025 – Present

  UCSC — Information Retrieval and Knowledge Management Lab (Prof. Yi Zhang)
  - **Multi-Modal Agent Architecture**: Developed a confidential AI system utilizing LLMs, vision models, and multi-agent collaboration for dynamic media interpretation and contextual user assistance.
  - **Computer Vision and Captioning Modules**: Built pipelines for ingesting and analyzing visual input, including object recognition and image captioning using SOTA models.
  - **Agent Collaboration via AutoGen**: Leveraged AutoGen to orchestrate agent workflows, improving task efficiency and adaptive response generation.
  - **Knowledge Retrieval with Web Crawling**: Implemented retrieval-augmented generation (RAG) and live web scraping to ground agent responses in relevant, external information.
  - **Collaborative Research Development**: Worked within a cross-disciplinary team to design, test, and deploy AI systems capable of handling real-time, multi-modal input.
- **EduMUSE – AI-Powered Modular Study Assistant** May 2025 – Present

  UCSC Silicon Valley Extension — Team Project
  - **AI-Driven Learning Companion**: Developing a modular study assistant that supports summarization, quiz generation, podcast-style reviews, Q&A, and web search to enhance student understanding.
  - **Multi-Agent Orchestration**: Using CrewAI to coordinate specialized agents for tasks like retrieval, reasoning, generation, and content pacing across a shared learning context.
  - **Personalized and Extensible Design**: Built for adaptability across learning styles — including interactive tutoring, content review, and custom assessment — via pluggable modules.
  - **Team Collaboration**: Working in a small team to design, prototype, and test an educational tool grounded in real academic needs and scalable AI pipelines.
  - **GitHub**: github.com/iamsorenl/EduMUSE