Ericson P. Kimbel, II

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Education

University of Pittsburgh (Pitt GPA: 3.42; Overall GPA: 3.64) 2024-Present
BSE Bio-Engineering (Medical Product Engineering concentration), Pre-Med track; MS Medical Product Engineering, Accelerated EAGr dual-degree (BS Dec 2027, MS Dec 2028). Minor: Chemistry. Certificates: Innovation, Product Design, and Entrepreneurship; Conceptual Foundations of Medicine. Dean's Honor List: Fall 2025, Spring 2026; Term Honor List: Spring 2025.

Penn State University, New Kensington Campus (3.8 GPA) 2022-2024
Biomedical Engineering (BS) major, Medical Imaging and Devices subplan, and Pre-Med. Dean's List all terms. Goalkeeper for Men's Soccer (USCAA Division II; PSUAC): PSUAC All Conference Award 2022 and 2023.

Shady Side Academy, Middle and Senior Schools 2015-2022
Linear Algebra, Intro to Multivariable Calculus, AP Calculus BC, Physics 3, Intro to AI, Latin IV; William C. Nealon Art Award.

Objective

Sleep Medicine Physician (Somnologist). Goal: educate, treat, and help people afflicted with sleep apnea and related sleep disorders through AI, custom medical devices, and local inference pipelines. Along the way: design and improve medical devices, therapies, and automated detection methods for better patient outcomes.

Experience

Student PI, Sleep Apnea Cognitive Research (IRB STUDY26010062) 2022-Present

- Multi-institution IRB protocols (Penn State and Pitt). IRB-approved, HIPAA-aligned study comparing untreated OSA, treated OSA (CPAP), and healthy controls; currently in peer review at Pitt. Designed and led the study from start to finish, managing every stage from initial planning to final analysis. Academic credit: MATH 296 twice, honors ENGL 202C, and BIOENG 1002.
- Created cognitive battery (RCRFB) from scratch: 60,000+ lines of Python, 91 automated test suites, under 1 ms measurement overhead, and 99.99% frame stability. Runs offline on participants' hardware, with human and hardware checks first.
- Automated data-processing pipeline combining deterministic processing with probabilistic processing (LLMs) to flag and detect every possible variation in the data, with human oversight; analysis pipeline verified 18/18 on synthetic data.

Independent Expert Consultant, Independent 2026-Present

- Advising law firms, research labs, research funds, hedge funds, and private equity firms on AI compute and GPU hardware, including through expert networks under NDA.

Local AI Research and Web-Scraping Agent, Kimbel Law Offices 2026-Present

- Uncensored, vendor-independent, fully local, autonomous AI research and web-scraping agent (LM Studio, llama.cpp, self-hosted SearXNG, MCP tool-calling) returning schema-validated output. Restart-safe; tested multi-day and multi-week.

AI-to-Hardware Medical Device R&D, Independent 2026-Present

- Generative AI-to-hardware framework for patient-specific medical devices, designed, deployed, and run entirely on dedicated self-hosted AI infrastructure, eliminating reliance on cloud services. Lead on custom-fit CPAP mask (tested on myself as Patient Zero). Built a 10,000+ line local AI CAD assistant.

Patent-Pending Inference Optimization Research, Independent 2024-Present

- Sole inventor on patent-pending work. Research cluster: 2x NVIDIA DGX Spark GB10, ASUS P16 Spark laptop, ROG Flow Z13, ASUS ROG Phone 7 Ultimate. MoE models up to ~2.8T parameters; trained models from scratch and fine-tuned trillion-parameter MoE models.

Hardware Thermal Engineering, Independent 2020-Present

- Third place global AnTuTu record (ASUS ROG Phone 7 Ultimate, 1,591,570) using custom thermoelectric cooling, deep OS stripping, and aggressive thermal profiling; under-volt sweeps across AMD/Intel/NVIDIA/Qualcomm.

LitCon Group, LLC, Paid Internship Summer 2021

- Researched and wrote background reports for business development, document reviews, and case management for litigation.

Senior Design Team 11, Medication Management System (BIOENG 1160) Fall 2026-Present

- Co-wrote the 13 ISO 14971 biological and chemical hazards and wrote the Step 1 device determination, proposed FDA regulatory pathway, biological FMEA, fault tree analysis, etc.

Skills

Languages: Python, C++, C, C#, MATLAB, JavaScript, HTML, SQL, Shell/Bash, PowerShell, Rust (dabbled), Assembly (dabbled).
AI/ML: Local LLM inference, agentic systems, RAG, training from scratch, fine-tuning (QLoRA, LoRA, full), quantization (NVFP4, GGUF, GPTQ), MCP tool-calling.
Tools: LM Studio, llama.cpp, PyTorch/CUDA, TensorRT, vLLM, Docker, SGLang, PsychoPy, FreeCAD, Git/GitHub.
CAD/Fabrication: FreeCAD (Python API, AI-assisted modeling), FEA analysis, 3D printing and 3D scanning, injection molding, vacuum forming, metrology, soldering, PCB design, milling, lathe, welding.
Systems/Regulatory: Requirements, use cases and user needs, ISO 14971 hazard analysis, FDA classification and 510(k) pathway, design controls, V&V test planning, IRB protocols.
CPAP Systems: Mask, headgear, tubing, humidifier, filter, and airflow tuning; settings, connectivity, SD-card data analysis.
Campus Engagement: TA, BIO-E Circuits Lab (Fall 2025); Pitt BMES; Penn State New Kensington Tutor, up to 20 hrs/week, incl. Physics 2 while taking it (above 100%); Student Government Parliamentarian; Penn State Esports; Math Club VP; NSLS (Presidential Member, Penn State; Member, Pitt).