Rares Topor-Gosman

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Summary

Mechatronics Engineer with **8+ years of progressive experience** developing innovative software and hardware solutions across critical sectors including sustainable transportation (Tesla), large-scale software systems (Uber), and **healthcare technology** (Athelas, Assort Health, Contour Health).

Proven ability to **lead complex technical initiatives** from concept to market, integrating embedded systems, cloud infrastructure, and AI/ML components. **Co-founder** of Contour Health (raised $3M seed funding) and **Founding Engineer** at Assort Health (later secured $26M Series A), developing solutions that expand healthcare access for vulnerable populations.

Brings specialized expertise in **telehealth platforms**, **remote patient monitoring**, **HIPAA-compliant architectures**, and **AI-driven healthcare automation** to create technologies that reduce healthcare delivery costs while improving outcomes. Combines technical leadership with entrepreneurial experience to deliver transformative solutions addressing critical challenges in American healthcare infrastructure.

Education

University of Waterloo — Waterloo, ON, Canada
Bachelor of Applied Science (B.A.Sc.) in Mechatronics Engineering, Honours — 2014–2019

- Senior Design Project (Published IEEE T-MRB): Contributed to the design, analysis, and validation of a novel, internally routed, cable-driven mechanism for gravity balancing of multi-link serial robots for high-dexterity applications (e.g., medical robotics).
- Relevant Coursework: Embedded Systems Design, Control Systems, Robotics, Machine Learning, Software Engineering, Digital Logic.
- Acknowledged globally as a top-tier engineering program, consistently ranked #1 in Canada for Engineering & Computer Science.

Experience

Contour Health — New York, NY
Co-Founder & Head of Engineering — October 2023 – Present

- Co-founded and secured $3M in seed funding for a health tech company focused on telemedicine for palliative care and AI-driven patient financial engagement, addressing critical gaps in healthcare for Medicare patients with serious illnesses.
- Architected and led end-to-end development of a specialized telemedicine platform with robust backend APIs (Python, FastAPI, PostgreSQL) ensuring HIPAA compliance and integrating multiple communication channels (video conferencing, messaging, SMS) for seamless patient-provider interactions.
- Established scalable cloud infrastructure on GCP utilizing GKE, Cloud SQL, and CI/CD pipelines with comprehensive security controls to support high availability healthcare services.

- Developed Contour Pay, an innovative platform using AI-driven communication (LangChain, LLMs) to humanize medical collections, with secure payment processing (Stripe) and custom scheduling capabilities, significantly reducing administrative burden while improving patient experience.
- Implemented solutions that improve healthcare access for vulnerable populations and modernize financial interactions, demonstrably reducing costs associated with poor care coordination and administrative inefficiency.

Assort Health Remote, Canada
Founding Backend Engineer Aug 2023 – Oct 2023

- Served as founding engineer for a healthcare startup developing an AI platform to automate call centers, creating core architecture that helped secure $26M Series A funding.
- Designed and built scalable backend system (Python, FastAPI, Redis) with robust EHR integrations via Redox and FHIR APIs, enabling provider scheduling, appointment booking, and patient record updates.
- Established cloud infrastructure on GCP using Kubernetes (GKE) with comprehensive HIPAA compliance measures for handling sensitive patient data.
- Architected backend services supporting proprietary AI models (LLMs, TTS, STT) and agentic state machine for natural language processing in healthcare communications.

Athelas Mountain View, CA
Software Engineer Apr 2021 – May 2023

- Led core development of FDA-cleared Athelas Home, the first FDA-approved in-home hematology analyzer enabling critical remote monitoring for patients requiring Clozapine therapy. Implemented advanced optical calibration procedures that increased manufacturing yield by 20% while reducing device test time by 8 minutes per unit.
- Developed and deployed ML models for platelet detection enabling Complete Blood Count (CBC) analysis, and architected scalable backend infrastructure on GCP/Kubernetes that reduced compute costs by 50% while supporting daily diagnostic tests for over 100,000 monitored patients.
- Built essential Remote Patient Monitoring web portal enabling nationwide nursing teams to monitor vital signs in real-time for 100,000+ patients during the COVID-19 pandemic, facilitating proactive interventions and addressing urgent healthcare needs.
- Engineered automated systems for FDA regulatory compliance and healthcare revenue processing, including a high-throughput remittance platform handling diverse formats (API, web portals, faxed PDFs, EDI 835) that processed over $2M monthly in collections while reducing payment errors by 90%.
- Contributed to company growth through technical leadership and talent acquisition (helping hire 25% of engineering team), while developing internal tools that improved device debugging, firmware updates, and customer support response times by 60%.

Uber Palo Alto, CA
Software Engineer II, Fraud & Risk Sep 2019 – Apr 2021

- Re-architected chargeback processing from batch to real-time streaming (Java/Scala, Kafka, Spark), automating evidence compilation and reducing financial losses through improved dispute resolution.
- Built ML feature pipelines (Python, Spark, SQL) for real-time fraud detection on Uber Eats, protecting millions of daily transactions from sophisticated fraud schemes.
- Led risk management integration for Uber Cash peer-to-peer gifting from inception to launch, ensuring secure transactions and regulatory compliance for new financial services.
- Enhanced fraud detection accuracy and scalability across platforms processing millions of transactions daily, protecting users, merchants, and revenue streams.

Uber Palo Alto, CA
Software Engineer Intern, Maps Summer 2018

- Developed real-time data pipeline for pickup/dropoff hotspot optimization using Hadoop, Spark, and Elasticsearch, improving geospatial data processing efficiency.
- Built backend microservice (Java) and interactive visualization tool (JavaScript, Mapbox) for hotspot analysis, reducing average pickup times and ride cancellations in dense urban environments.
- Contributed to transportation infrastructure improvements through technical innovations that benefited millions of riders across major U.S. metropolitan areas.

Level Home Inc. Redwood City, CA
Firmware Engineer Intern Spring 2018

- Developed core application-layer firmware (C, RTOS) for the company's flagship smart deadbolt product, implementing critical features including reliable door open/close state detection and secure, time-bound key sharing capabilities essential for modern access control systems.
- Engineered sophisticated firmware utilizing ultra-low-power sleep states and meticulous power management, achieving the target of over one year of battery life on a single CR2 battery—a key competitive differentiator advancing U.S. leadership in smart home technology.
- Actively participated in Electrical Engineering (EE) design reviews, providing firmware perspective that successfully motivated component changes (e.g., addition of a Real-Time Clock - RTC) to enhance functionality (key expiry integrity) and further reduce system power consumption by 15%.
- Created essential internal debugging tools to streamline development, including a custom router application enabling secure forwarding of device serial traffic over TCP to remote terminals, significantly improving diagnostic efficiency for the engineering team developing innovative U.S.-designed IoT security products.

Tesla Palo Alto, CA
Hardware Engineer Intern, Body Controls Summer 2017

- Developed automated HIL test scripts to validate Model 3 body controller ECUs across extreme temperature ranges (-40°C to +80°C), ensuring reliability of critical safety systems.
- Debugged complex low-voltage circuitry issues and motivated PCB layout changes to improve system reliability and manufacturing yield.
- Implemented firmware for sensorless BLDC motor driver controlling the main HVAC blower, optimizing thermal performance and reducing system heat for extended vehicle range.
- Developed security controller firmware enabling "Phone Key" feature for keyless vehicle access via smartphone proximity detection.

Tesla Palo Alto, CA
System Integration Engineer Intern Winter 2016

- Built internal testing tools for verification, actuation, and diagnostics of devices communicating over automotive protocols (CAN/LIN), accelerating subsystem integration for electric vehicle production.
- Created dedicated Model 3 low-voltage subsystem testbench that enabled parallel firmware development without requiring full prototype vehicles.
- Conducted cost-benefit analysis comparing supplier ECUs versus in-house development, motivating strategic decision that provided cost savings and technical advantages.
- Coordinated cross-functional teams to ensure timely delivery of initial in-house components before production launch.

FleetCarma (Acquired by Geotab) Waterloo, ON, Canada
Embedded Developer Intern Spring 2016

- Developed firmware (FreeRTOS, PIC32) for an OBD-II based electric vehicle telemetry logger that captured data for EV fleet management, supporting sustainable transportation initiatives through improved analytics.
- Optimized low-level drivers for 4G LTE modem and GPS receiver modules, reducing average GPS cold-start fix time from 27 seconds to under 4 seconds, enhancing real-time tracking precision for fleet operations.
- Built a battery characterization test platform using Intel Edison to generate discharge profiles for lithium-ion cell chemistries under various load conditions, providing data for EV power management design.

Deloitte Canada (D-space Labs) Kitchener, ON, Canada
Product Prototyper Intern May 2015 – Aug 2015

- Designed and built a functional proof-of-concept wearable safety device for monitoring miners' vital signs and environmental conditions, integrating multiple sensors with an Intel Edison compute module and custom 3D-printed enclosure.
- Designed custom PCB using Eagle CAD to interface sensors with an ATMEGA328P microcontroller, incorporating logic-level shifters and a boost converter for optimal power management.
- Implemented a lightweight publish/subscribe messaging system over MQTT using Python and Heroku, enabling real-time data transmission for safety monitoring in industrial environments.

Skills

Technical Core

- **Languages:** Python, C/C++, Java, JavaScript/TypeScript, SQL, Scala; Go, Swift (Familiar)
- **Frameworks:** FastAPI, React, Django, Flask, Node.js, TensorFlow, PyTorch, SQLAlchemy, LangChain, Spark, Kafka
- **Cloud & Infrastructure:** GCP (GKE, Cloud SQL, Secret Manager), AWS; Kubernetes, Docker, CI/CD pipelines, TLS/SSL
- **Databases:** PostgreSQL, MySQL, Redis, MongoDB, Cassandra, Elasticsearch

Hardware & Embedded

- **Firmware:** ARM, PIC32, ATMEGA328P; RTOS; Low-Power Optimization; Motor Control
- **Integration:** PCB Design, HIL Testing, Optical Calibration, ESD Compliance, Sensor Systems

Domain Expertise

- **Healthcare Technology:** Telehealth Platforms, Remote Patient Monitoring, Medical Device Development (FDA-cleared), HIPAA Compliance, Healthcare Data (FHIR)
- **Finance & Operations:** Revenue Cycle Management, Automated Collections, Payment Processing (Stripe), API Integration
- **Transportation:** EV Systems (Body Control, HVAC), Automotive ECU Development, Telemetry, Manufacturing Optimization

Leadership

- **Startup:** Co-founder Experience, Technical Strategy, Fundraising ($3M seed), Product Development
- **Team:** Engineering Management, Technical Mentorship, Cross-Functional Collaboration
- **AI/ML:** Healthcare Applications, LLMs, Computer Vision, Fraud Detection Systems

Social Entrepreneurship & Innovation

Phonic Research (Acquired by Infillion) Global / Remote
Founding Member & Technical Architect 2019–2020

- Co-founded AI-powered research platform using NLP for audio/video feedback analysis, selected as Hult Prize Global Finalist (top 7 of 100,000+)
- Presented at UN Headquarters to panel including President Clinton; architected machine learning system for sentiment analysis and thematic categorization
- Technical foundation led to Y Combinator acceptance (2020) and adoption by leading U.S. institutions and Fortune 100 companies prior to acquisition