Rein Golubjatnikov

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Education & Skills

University of Alabama - B.S in Computer Engineering - Minor in Computer Science & Math

- University of Alabama GPA: 3.52/4.0
- Scholarships: Academic Scholarship, Engineering
- Dean's List: Fall 2023, Spring 2024, Fall 2024, Spring 2025, Fall 2025

Relevant Coursework

- Calculus I, II, and III, Linear Algebra, Differential Equations, Python, C++, Computer Architecture, Data Structures, Discrete Math, Digital Logic, Software Design & Engineering, Embedded Systems, Electronics I & II, Microcomputers

Technical Skills

- **Programming:** C (Embedded), C++, Python, SystemVerilog,
- **Embedded & Hardware:** STM32 Nucleo, Basys3 FPGA, STM32CubeIDE, Digital Logic, Circuit Analysis
- **Tools:** MATLAB, CAD, ReefMaster, Microsoft 365, Excel, VS Code, LTSpice, Vivado,

Experience

Undergraduate Research Assistant - Remote Sensing Center, The University of Alabama **Aug. 2025 - Present**

- Contributed to development of a drone-mounted FMCW Ku Ka band radar system for remote sensing polarimetry applications
- Programmed and tested microcontroller firmware for embedded control and microwave Phase-Locked-Loop TX generation
- Conducted laboratory testing, hardware validation, and troubleshooting of radar subsystems

Dillingham Jones and Cissel, Inc. Insurance (Summers) **May. 2024 –Aug. 2025**

- Data Analytics, Coding and Sales Assistant
- Work with management to maximize client file organization and workflow
- Learned Property and Casualty and Small Business Insurance Products

Tournament Fishermen **Jan. 2018 – Present**

- Competed in various fishing tournaments at local, regional, and national levels earning prize money and recognition
- Developed skills in strategy, adaptability, problem solving, and making important decisions under pressure
- Collaborated with sponsors and competitors to build a network within the fishing community

Activities & Leadership

Co-Founder & President – Pittsford Fishing Club **Sep. 2019 – Jun. 2022**

- Founded the high school fishing club, growing membership to over 80 members by senior year
- Organized events, competitions, and community outings, fostering leadership and team-building skills

Team Manager, University of Alabama Bass Fishing Team **Nov. 2023 – Present**

- Manage team finances and reimbursements.
- Help organize community outreach and fundraising activities to support the team's growth and success.
- Organize tournaments and manage them within the club.

Projects

Underground Wireless Sensor Network for Mining Operations

- Selected by Alpha Metallurgical Resources to design a wireless sensor network for real-time data transmission in underground coal mining environments as part of the University of Alabama Senior Capstone Program
- Designed and implemented a low-latency (<5 ms), high-throughput (~100 Mbps) dual-band (2.4 GHz / 5 GHz) network under harsh underground conditions, ensuring reliable communication in non-line-of-sight tunnel environments
- Collaborated with industry engineers, faculty advisors, and a multidisciplinary team of four to develop system architecture, component selection, and deployment strategy
- Conducted on-site testing in an active underground mine, identifying and mitigating challenges including RF interference, airlocks, and competing mesh networks
- Validated system performance through field testing, achieving stable connectivity with zero packet loss in constrained underground environments

FPGA Calculator System (Basys3 – SystemVerilog)

- Designed modular SystemVerilog architecture with hierarchical FSM control
- Implemented synchronous datapath and control separation
- Developed seven-segment display driver with multiplexed timing logic
- Simulated and validated design in Vivado; synthesized for Digilent Basys3 at 100 MHz

Lake Mapping & Sonar Data Processing

- Collected and processed sonar log data for bathymetric map generation
- Applied GPS offset correction and signal filtering in ReefMaster
- Generated AT5-compatible overlays for marine electronics systems
- Produced side-scan mosaics and bottom composition models