



Peter Volgyesi
Principal Research Scientist

Background

- **1st place DAPRA Spectrum Challenge**
Preliminary Event Competitive Track, 2013
- **3rd place DAPRA Spectrum Challenge**
Final Event - Cooperative Track, 2014
- **1st place DARPA Spectrum Collaboration Challenge**
Preliminary Event 1, 2017
- **2nd place DARPA Spectrum Collaboration Challenge**
Preliminary Event 2, 2018
- **2nd place DARPA Spectrum Collaboration Challenge**
Championship Event, 2019

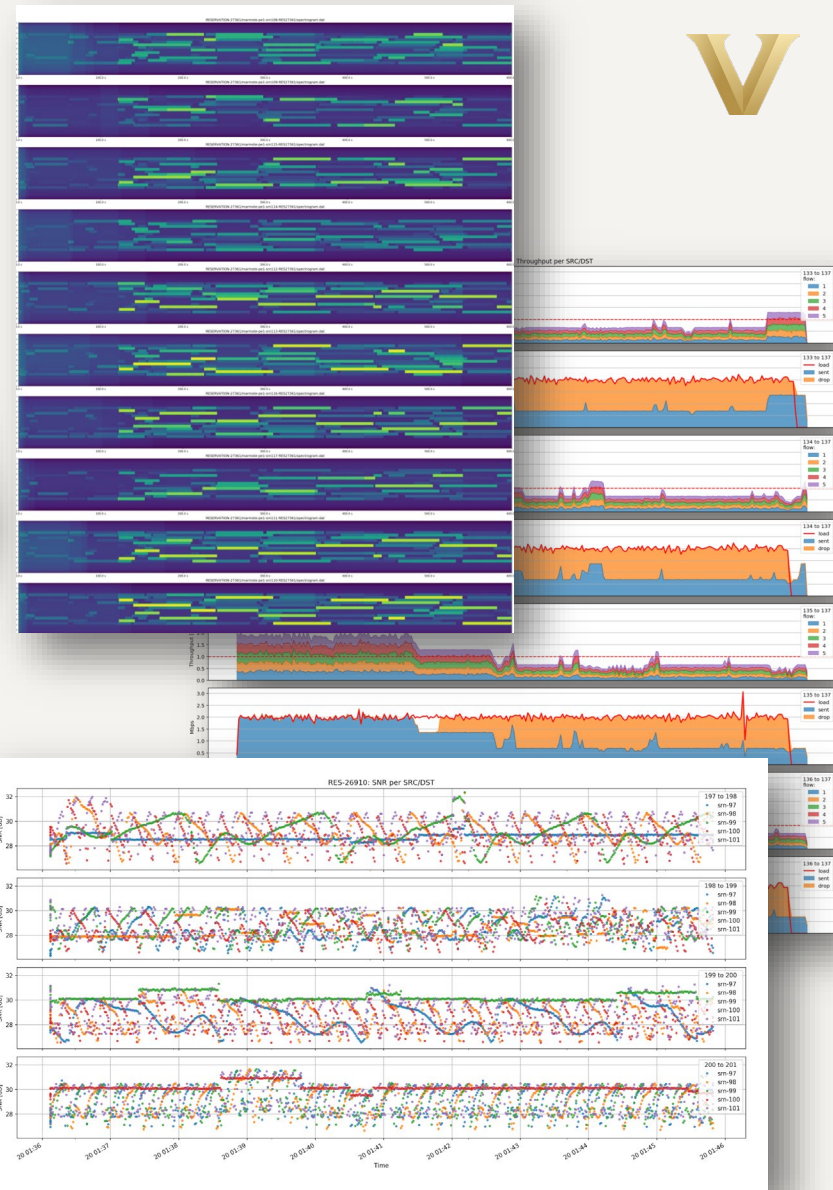
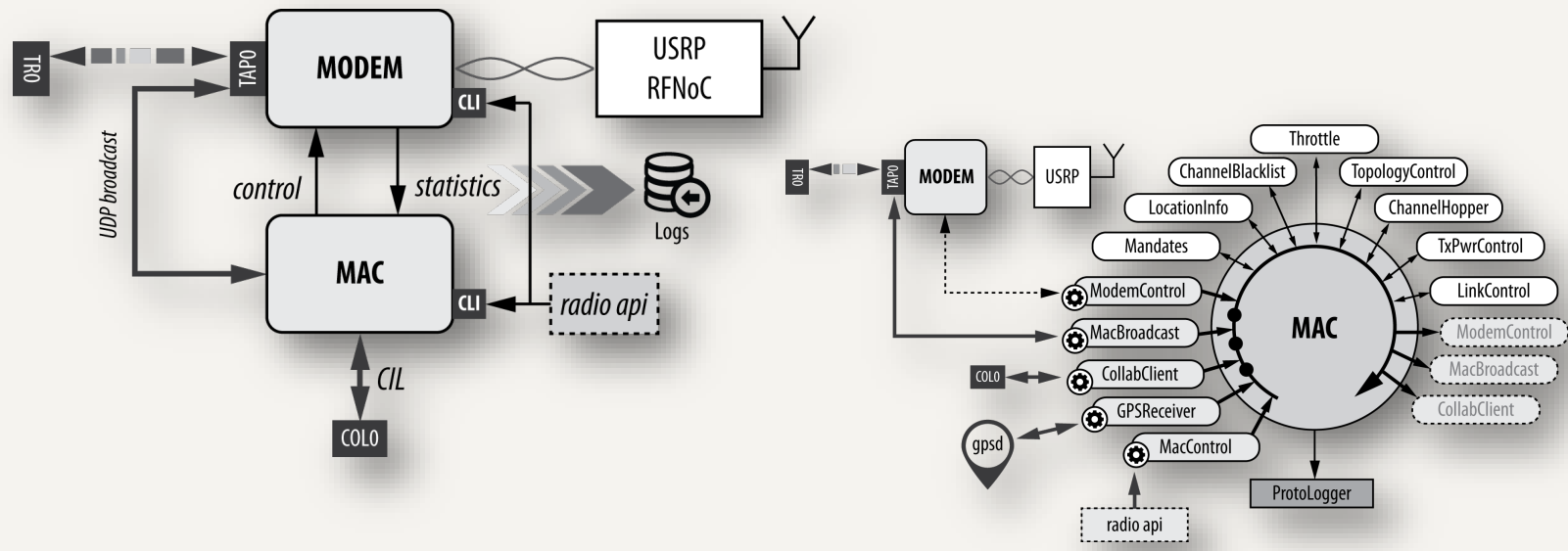


Expertise

- SDRs (USRP, GNU Radio)
- Vertically integrated MANET solutions
- Custom waveforms (single-carrier, FBMC, OFDM)
- AI-driven radios (PHY, MAC)
- Distributed RF spectrum sensing
- Real-time adaptive, collaborative radio networks

Interested in being a part of a larger team

Spectrum Challenges – Lessons Learned



- AI-driven radio baseband: FBMC, real-time spectrum observations & tuning (MCS, spectrum occupancy)
- AI was targeting MAC and collaboration
- **AI/ML for PHY was a missed opportunity**
- Open-sourced: <https://gitlab.com/marmote/gr-marmote3>

Current Work



Successful **technology transition**

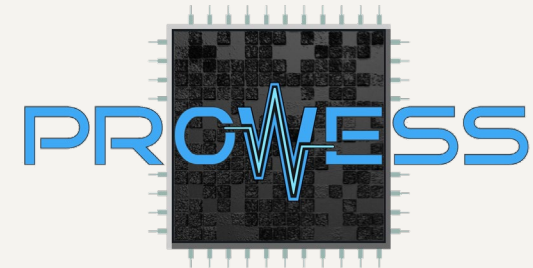
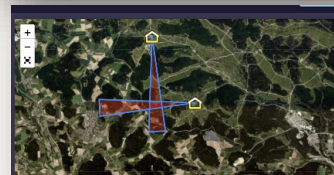
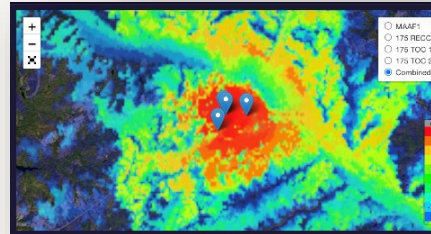
25 employees, 4 locations - xtremis.ai

Large open-air testing and evaluation center

Deployments

- JMRC (Hohenfels, Germany)
- Special Operations Task Force (Middle East)
- McEntire JNGB
- Ukraine

Focus: distributed RF spectrum sensing, localization, classification, RF signature management



DARPA PROWESS

Intel, LMCO

- High-throughput streaming-data processor for SDRs
- Fast reconfiguration (50ns)
- Rapid development (vs. FPGA)

Focus: spectrum sensing, AI-based signal classification, scheduler runtime