

# Kyle R. Hess

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## Professional Experience

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**Dynetics Inc. | Electrical Engineer - Section Manager | 10/2021 - Present**

### *Reverse Engineering & FME*

- Work with multiple small teams to reverse engineer and exploit mixed signal circuits and systems, identify unknown components and understand the designs from low-level circuitry to the complete system
- Visually and electronically trace unknown circuits, draw their representative schematics, and analyze the schematics to determine functionality
- Write technical sections for deliverable milestone reports that provide project status updates to customers and other project contributors. Reports include threat system findings and testing methodologies
- Utilize some threat hardware designs to reproduce circuit boards for customer replacement hardware

### *Hardware Design & Testing*

- Create electrical schematics using Dx Designer and collaborate with the PCB layout team to produce complete PCBA design packages for boards that include digital, analog and RF signals up to 12 layers
- Produce system block diagrams and chassis cable assembly drawings in Visio for top-level integration
- Develop supporting hardware for our Hardware-In-The-Loop team to interface between simulation computers and threat systems to close the simulation loop
- Conduct bench testing of remanufactured threat hardware and original designs to verify assumptions and simulation results
- Apply internal Agile PLM tools and processes to track the release of parts and drawings as well as engineering change orders and deviations for controlling revisions of these items

**Gladiator Technologies | Electrical Engineer | 09/2017 - 09/2021**

- Worked with a small team to develop and debug firmware for IMUs and Inertial Navigation Systems (INS)
- Collaborated with a contracted team of experts to write and integrate a new 15-state Extended Kalman Filter into a legacy INS/GPS design which resulted in a 10x improvement in "free-inertial" navigation performance
- Supported C++ Windows applications for production testing and calibration
- Created and managed electrical schematics, circuit board layouts, board revisions and BOMs with OrCAD
- Rewrote internal data processing tools using Python to replace cryptic Excel macros and support new products
- Supported customers with application engineering challenges during IMU integration (remotely and directly)

## Education

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**University of Washington, Seattle, WA | Bachelor of Science in Electrical Engineering (2017)**

**Olympic College, Bremerton, WA | Associate of Science (2015)**

## Skills & Abilities

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**Electronics:** Experience with SPI, UART, RS-485 and USB interfaces, 32-bit microcontrollers (STM32 & NXP K22), schematic design & capture, PCB layout, CAD/EDA library management, and soldering

**Software:** KiCAD, LTSpice, Dx Designer, Visual Studio, Git, OrCAD, NI Multisim

**Programming:** C, C++, Python, VHDL, MATLAB, C#, JavaScript, System Verilog

## Recent Personal Projects

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### **GPS Disciplined Oscillator**

10 MHz frequency reference based on a voltage controlled crystal oscillator phase-locked to a GPS time pulse.

### **eBike Motor Driver**

Efficient servo driver utilizing space vector modulation for a 1.5 kW, three-phase brushless DC bike motor.