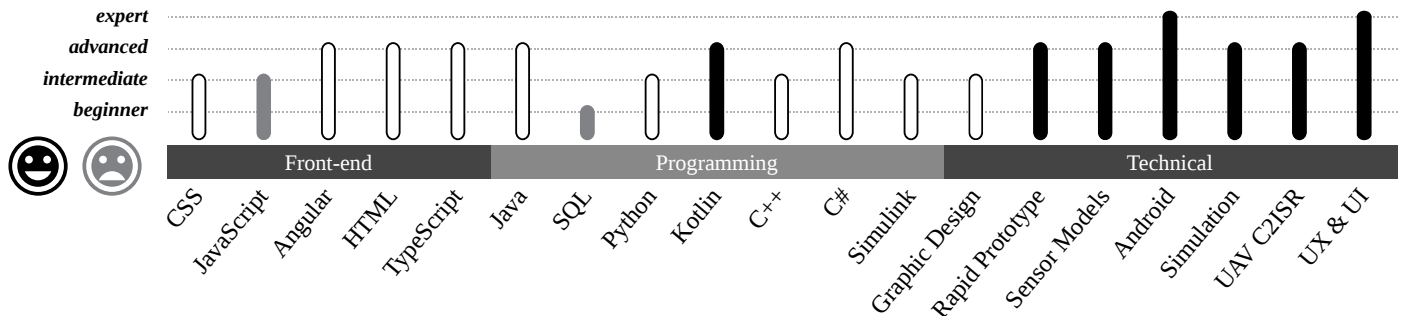


Anthony J. Mandra

Technical Skills (WIP)



Work Experience

Sr. Engineer, Keysight Technologies (2017 - Present)

- Designed an Angular data-binding directive that could automatically hook any widget to its corresponding backend entity. Eliminated thousands of lines of code.

Sr. Engineer, Companion (2011 - Present)

- Designed a lightweight raw image decoder that can operate on limited Android resource budgets. Supports over 430 cameras and image formats previously lacking in Android. Custom C++ JNI decoder allows advanced memory management to enable decoding of extremely high-resolution images that exceed Android heap limitations.
- Developed a controller that can efficiently load images in high volume galleries, regardless of scrolling speed.
- Created a unique recycling bin that intelligently manages storage space and protects recent user actions allowing a user to operate without dialog interference.
- Developed an intelligent search engine that automatically finds raw images on a device and adds them to a database that manages metadata and allows advanced sorting and filtering of images.
- Created an interface that allows the Android app to manage images from alternative storage such as external media via a USB card reader.
- Designed a sleek interface that allows the user to quickly manipulate image metadata and classify images for later production.
- Developed a custom image viewer that intelligently caches high-resolution images and loads images in stages for a seamless experience. Zooming uses a custom region decoder to minimize memory footprints.
- Managed packaging and deployment on Google Play Store and Amazon App Store.
- Photo management app currently has over 250,000 installations.

Sr. Engineer, BAE Systems (2011 - 2012)

- Developed a weather model that implemented GRIB forecasts to create pre-calculated high resolution weather grids. Designed a highly efficient 4D interpolation technique (>90% calculation reduction) that allowed for a large grid to be processed on the order of a second. Model was also capable of processing encountered winds in realtime and expanding the measurements into the existing grid to improve local accuracy.
- Improved existing transverse Mercator projection transformations to utilize the Redfean series convergence solution.

Engineer 3, Northrop Grumman (2007 - 2011)

- Developed a mission management interface (Tellus) for autonomous unmanned aerial vehicles built upon NASA's Worldwind software (3D globe similar to Google Earth). Tellus offered an infrastructure for displaying threats, tasking, and terrain within the scope of mission geography. The mission management component allowed graphical editing of waypoints, assisted least-cost routing for low observables, and validation/upload.
- Subject-matter expert on supplier auto-router, integrating the system within Tellus and designing interfaces and concepts of operation.
- Designed interfaces to quickly allow an operator to assess aircraft survivability and payload effectiveness. Interfaces could display statistics as well as integrate seamlessly with the 3D Tellus globe for situational awareness.
- Designed a high-fidelity model of a two-axis line-scan EO/IR sensor. Implemented the model in such a way that it could run real-time off vehicle feeds in simulation or process mission plans on the order of seconds for effectiveness analysis. In simulation the model could interface with MetaVR (COTS) to generate high-fidelity simulated imagery including movers and subjects of interest. Simulated imagery could stimulate operators to more reliably predict workload impacts. Analytical mode was used to display effectiveness predictions to assist the operator during mission. Evolved into subject-matter expert on sensor concepts of operation.
- Rapidly prototyped above systems and interfaces years in advance of official development cycles to assist in Operator-In-The-Loop (OITL) events, which allowed direct customer feedback into development.
- Orchestrated OITL events which allowed customers to operate prototype systems well before delivery to perform mission goals within simulated environments reflective of real-world situations. Vehicles and payloads were simulated with high-fidelity models, while threats and tasking were developed from real-world intelligence. Feedback drove system development and concepts of operation.
- Managed simulation server farm and oversaw hardware requirements and upgrades.

Scientist, David H. Pollock Consultants (2005 - 2007)

- Fabricated a harness for man-portable surface-to-air missiles that allowed the devices to drive a three-axis gimbal for hardware-in-the-loop (HIL) simulation within an optical black body experiment.
- Developed a simple flyout simulation for integration in the above experiment. Drove a mirror array to simulate flyout of a black body device stimulating the HIL missile.
- Designed an experiment to automatically manipulate experimental devices for optical characterization, saving hundreds of man hours.
- Designed a program to receive and replicate optical signals in real-time.

Research Experience

- Infrared Spectral Imaging of Mars, Rowan University, Research Assistant, 2004-2005
- Infrared Comet Spectroscopy, Rowan University, Research Assistant, 2003-2004

Education

Master of Aeronautical Science, 2018

Concentration, Human Factors
Embry Riddle Aeronautical University

Bachelor of Science, Physics, 2005

Minor, Astronomy
Minor, Computer Science
Rowan University

Clearance: TS/SCI (lapsed)