

# Micah Dowty

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## Experience:

- Languages: C, C++, Python, Perl, assembly (x86/PIC), XML, XSLT, SQL, Verilog
- Developing and managing medium to large (150,000 lines of code) projects
- 3D and 2D graphics programming (low-level, GTK+, SDL, OpenGL)
- Embedded systems design and development, hardware/software integration
- Parser, compiler, and language development
- Low-level programming: video drivers, microcontroller firmware, bootloaders
- Digital design and implementation in FPGAs
- USB, I<sup>2</sup>C, RS-232, RS-422, and RS-485 interfaces
- Linux kernel module development
- Web design/development with XHTML, CSS2, XML, SQL, Apache, CGI, Twisted

## Current Projects:

- CIA, a system for tracking open source development (commit messages, bugs, etc) in real-time over the web, IRC, or XML-RPC (<http://cia.navi.cx>)
- An algorithm for interactive rendering of chaotic maps, (<http://fyre.navi.cx>) won the ACM regional Student Research Competition at SIGGRAPH 2004.
- Several small embedded systems, including electric field sensors and infrared devices
- A set-top-box system consisting of Python modules and multiple small USB peripherals

## Work Experience:

- Command and Data Handling team lead on the Citizen Explorer satellite at the Colorado Space Grant Consortium (May 2003 - present)
  - Design and implementation of hardware and software for the CX-1 Critical Decoder, a microcontroller responsible for controlling critical spacecraft systems over RS-485 and RS-232 in real-time
- PicoGUI-related consulting jobs:
  - Smartdata, developing PDA and set-top box devices
  - Exadigm, developing hand held credit card processing units
  - RidgeRun, developing a Linux-based OS for cellular phones

## Past Projects:

- Creator and lead developer of PicoGUI, a new open source Graphical User Interface system with a unique architecture (<http://picogui.org>)
- "Space Invaders" clone implemented entirely in hardware, using a Xilinx FPGA
- Decorative computer-controlled LED arrays (<http://blinkerlights.sf.net>)
- Educational software for elementary school students (<http://spellactiv.sf.net>)
- Hardware, firmware, and Linux kernel module development for USB devices
- 3D engine with on a new continuous level of detail algorithm and copy-on-write database

## Education:

- Senior in Computer Science at the University of Colorado at Boulder
- Several Electrical Engineering courses at the same university
- Graduated from the International Baccalaureate program at Douglas County High School