# Anders Strand

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## Education

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| 2010–2015 | **Master in Engineering Cybernetics**, *NTNU*, Trondheim. |
| 2006–2009 | **High School with a focus on science subjects**, *Vestby videregående skole*. |

## Core skills

- **Embedded systems**, *Electronics, sensors, control systems, communication through SPI, i2c, CAN, UART, Ethernet.*
- **Wireless systems**, *2G,NB-IoT, WiFi, Blueooth 5.0, 433 Mhz and 2.4 Ghz proprietary, GPS.*
- **Programming**, *Real time C and C++, Python (for testing and tools), RTOS on MCU's and desktops. Platforms: Linux, Windows, ARM Cortex M 32 bit MCU, Microchip (Atmel) AVR 8bit MCU. Proficient in Git source control and agile development.*
- **Rapid prototyping**, *3d printing and CAD, proof of concept electronics.*
- **Communication**, *Speaking the language of developers, technicians, accountants, creatives, project managers and other stakeholders.*

## Work experience

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| 2020 - Present | **Freelance developer**, *Strand Engineering*, Oslo.<br>Freelance developer within embedded and real-time systems |
| 2018 - 2020 | **Camera Tracking Engineer**, *The Future Group*, Oslo.<br>Camera tracking integration for real time virtual productions |
| 2017 -2018 | **IMR Engineer**, *The Future Group*, Oslo.<br>Real time sensor network for mixed reality TV production |
| 2016 - 2017 | **Product Developer**, *Norwegian Creations*, Trondheim.<br>Electronics, embedded firmware, 3d design, rapid prototyping |
| 2015 - 2016 | **Application Engineer**, *Nordic Semiconductor*, Trondheim.<br>Technical support for Bluetooth Smart embedded development. Keywords: ARM cortex m4, Blueooth LE, RTOS |
| Summer 2014 | **Summer Intern**, *Nordic Semiconductor*, Trondheim.<br>Bluetooth smart home systems |
| Summer 2012 | **Warehouse clerk**, *ASKO Øst*, Vestby.<br>Recycling station |
| Summer 2011 | **Warehouse clerk**, *ASKO Øst*, Vestby.<br>Recycling station and truck driver |
| 2009-2010 | **Private**, *Engineer Battalion*, Troms. |

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| Summer 2009 | **Summer temp**, *Ramme Gaard*, Vestby.<br>Parking duty and general farm work |
| Summer 2008 | **Warehouse clerk**, *ASKO Øst*, Vestby.<br>Forklift operator |
| Fall 2007 | **Gas Station Clerk**, *Statoil Nord*, Vestby. |

## Selected projects

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| January 2019 | **Camera Tracking Integration**, *For broadcast systems.*<br>Real-time parser and router of camera and lens tracking data. Integration with Unreal engine, and synchronization with video. Integration of Linear Timecode (LTC) and object tracking systems. Keywords: x64 Windows, c++, Boost, Google protocol buffers |
| May 2018 | **Zoom lens calibration tool**, Software for calibrating broadcast zoom lenses. Written in C++ using OPENCV for image recognition and calibration algorithm. Integration with GUI using google protocol buffers. |
| December 2016 | **High precision GPS device**, *Using NTRIP RTK.*<br>Bluetooth Smart enabled GPS device, which utilizes a smartphone connection to retrieve NTRIP correction data, achieving high accuracy positioning. I did prototype manufacturing and testing, electronic component selection, firmware in C for ARM Cortex M4 architecture with blueooth LE (nRF52 from nordic). |
| May 2016 | **Quadcopter firmware**, *Bluetooth controlled quadcopter.*<br>The firmware included Bluetooth LE communication as well as a stabilization and movement controller. This presents a challenge because both require very precise timings to work properly. The quad can be seen in flight here. Written in C for ARM cortex m4 (nRF52) IMU sensor connected by SPI, and DC motors controlled with PWM. |
| June. 2015 | **Master Thesis**, *Aided remote control of indoor UAV.*<br>A simplified remote control system for long range control of indoor UAV's. The solution included video streaming and control interface over web (wifi), as well as a position hold controller based on distance measurement in six directions. Hardware platforms used were Raspberry PI (Linux), and Atmel ATmega 328 (8 bit MCU). Programming languages used were JavaScript, Python and C. |
| Feb. 2014 | **EMECS-thon**, *Winner of "Best technical implementation".*<br>EMECS-thon is a 48 hour embedded marathon. Our 3 man team made a smart mailbox which senses and weighs new mail, and email the info to its owner. It also featured a bluetooth LE controlled lock and motors for automatic opening and closing. The project was based on ATMEL's SAM4L board, Nordic Semiconductor's nRF51 dev kit and a raspberry PI. Our presentation was filmed, and can be found here. The languages used was python and C. |
| Fall 2012 | **Pinball game**, *In the course TTK4155 Industrial and embedded computer systems.*<br>We made an embedded system from scratch using breadboards, AVR MCU's and various developement kits. We implemented communication in serial trough SPI, I2C and CAN, and in parallell trough memory mapped I/O. We used servos, dc-motors and solenoids. With a rotary encoder we made a PID position controller for a small cart. We got a 90/100 grade on the project. The language used was C. |
| Spring 2011 | **Live Wallpaper for Android**.<br>Together with a friend I made a live wallpaper based on the game "Portal 2" by valve. It was quite popular, and has surpassed 160 000 downloads with an average rating of 4/5. The language used was Java. |

## Volunteer activity

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| 2014-2015 | **Crew chief**, *Videokomiteen.*<br>Leader of 13 Video technicians at the student society in Trondheim |

| 2012-2014 | **Video technician and accountant**, *Videokomiteen.* |
| | Budgeting and accounting, as well as responsibility for our computer systems. |
| 2011-2012 | **Editor**, *OmBul.* |
| | Omega Bulletin(OmBul) is the student paper for students of Electronics and Engineering Cybernetics at NTNU. |
| 2010–2011 | **Board member**, *Association of young scientists.* |
| 2010-2011 | **Crew-member**, *The Gathering 2011.* |
| | TG is the biggest data party in Norway |
| 2010-2011 | **Writer**, *OmBul.* |
| | Omega Bulletin(OmBul) is the student paper for students of Electronics and Engineering Cybernetics at NTNU. |
| 2008–2011 | **Member**, *Team Space Camp.* |
| | Team Space Camp is a sub-group of the Association of young scientists, which organises the yearly international European Space Camp at Andøya Rocket Range in northern Norway. It consists of students that works voluntarily trough the year with preparation and execution of the camp. |

## Interests

| Computers | From building and overclocking trough gaming and programming |
| Sports | Cardio and strength training. Volleyball, Football, Snowboard and cross country skiing. |
| Maker-activities | I enjoy creating things with my hands, from art to technical installations. |
| Music | I play the guitar and piano, as well as produce music as a hobby. |

## Driving Licenses

- Norwegian drivers license class B.
- Forklift drivers license classes T1,T2,T4.

## Languages

| Norwegian | Fluent | *Oral and written* |
| English | Fluent | *Oral and written* |
| German | Basic understanding | *Oral and written* |