

matthewmccord.com/products
matthewmccord.com/patents
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Skills

- Creative Design
- System Architecture
- Technology Innovation
- HW & SW Engineering
- UX & UI Design
- Rapid Prototyping
- Product Development
- Team Leadership

Software

- Microsoft Office
- Adobe Creative Suite
- SolidWorks, Flow, FEA
- Visual Studio, Jupyter
- Asana, Notion, Slack

Programming

- HTML, CSS, PHP
- JavaScript, jQuery, Angular
- ASP.NET, Python
- Java, C#

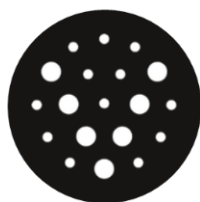
Patents

- US10602669 Narrowband PAR At Multiple Emission Wavelengths Yields Good Photosynthesis At Reduced Energy Cost
- US20180007838 Multiple Colors Of Narrowband PAR Time-Stage Yields Superior Plant Growth
- US10383606 Toilet Based Urine Analysis System
- US10928325 Urine Test System With Nutritional Recommendations
- US11192100 Multi-Factor Urine Test System Adjusts For Lighting And Timing

Summary

Engineer, inventor, and 2x entrepreneur who excels at collaborative innovation and creative design on a mission to develop new products and technologies that enrich people's lives in responsible ways. Over 10 years of experience developing consumer products, medical devices, industrial tools, and automation equipment with small to large scale companies. Expert in science and engineering, cross-functional leadership, technology innovation, intellectual property, system architecture, user experience design, rapid prototyping, DFM, FEA, FMEA, ISO 13485 manufacturing, 21 CFR 820 quality systems, automation, robotics, sensors, optics, photonics, spectrophotometry, data intelligence, visualization. Familiar with computer vision, machine learning, VR/AR.

Experience



Vessel

Co-founder, Head of Hardware and Innovation

Aug 2017 – May 2022 · 4 yrs 10 mos

- Introduced the world's first affordable and consumer friendly in-home instant test for a wide range of vitamins and minerals, hormones, and more
- Created IP portfolio and 5-year roadmap of new tests and products
- Led engineering and science teams to deliver hardware and consumables
- Ran scrum meetings, weekly sprints, and department OKRs (Agile Black Belt)
- Helped design mobile app functionality and user interface (4 stars in app store)
- Helped raise over \$20M and grow business to 20,000 monthly active users



Universe Innovation

Founder, Solutions Consultant

Jan 2016 – May 2022 · 6 yrs 5 mos

- Developed new products and technologies resulting in 4 patents granted, 3 patents pending, 2 startup companies, and many innovative solutions
- Provided problem solving and innovation services that helped businesses find solutions to their most difficult challenges and implement systems of innovation



Elite Tech Consulting

Founder, Engineering Generalist

Oct 2011 – May 2022 · 10 yrs 8 mos

- Provided engineering, prototyping, industrial design, UXD, and DFM services
- Helped multiple clients bring their product ideas to market



Symbiotic Systems

Co-Founder, CTO

Oct 2011 – Apr 2018 · 6 yrs 7 mos

- Introduced the world's first app controlled agricultural LEDs to deliver the intensity of sunlight and a dynamic spectrum spanning from ultraviolet to infrared
- Demonstrated 300% increase in tomato fruit mass (grams per watt) in third party trials against premium HPS lights and up to 500% increase in various terpenes
- Invented and patented multiple power and lighting technologies
- Designed and manufactured high power commercial grade intelligent LED systems with 11-band adjustable spectrum for agricultural and biotech applications
- Created modular optical system to accept multiple standard and custom optics
- Designed custom optics to optimize light distribution for different applications
- Set up production lines and supply chains with dozens of custom component manufacturers across Asia and United States
- Coordinated scientific research trials and produced data driven white papers
- Produced technical data, business plans, slide decks, financials, raised capital



Merlin CSI

Engineering Generalist, Front End Developer

Mar 2012 – Dec 2014 · 2 yrs 10 mos

- Developed platform for monitoring high value assets in hazardous environments with dashboards displaying live data and analytics via satellite and cell networks
- Developed industrial automation systems with programmable logic controllers
- Designed, manufactured, and assembled custom robotics for various applications
- Provided engineering services onsite, integrating into different engineering teams
- Programed CNC machines to fabricate parts from aluminum, steel, titanium, invar
- Created fixtures and procedures for manufacturing inspection and quality control
- Designed software user interface and user experience for multiple products



CareFusion

Mechanical Engineering Consultant, Industrial Designer

Nov 2012 – Feb 2013 · 4 mos

- Responsible for mechanical and industrial design of multiple touch screen products
- Developed specification for projected capacitance touch screen stack and mechanical button stack with metal dome switch and light guide illumination
- Used modern surfacing and continuous curvature to create recognizable shapes across a family of products that define the brand
- Designed injection molded plastic housing to be ergonomic, durable, and sanitary
- Selected special materials to survive aggressive cleaning chemicals and drop testing
- Design eliminated fluid ingress and dirt traps
- Developed capacitive flex circuit enabling parts of enclosure to detect touch
- Created shielding to protect display signal and noisy electronics from EMI
- Designed products to be field serviceable and easily replaceable



Nordson Asymtek

Mechanical Engineering Consultant

Mar 2012 – Oct 2012 · 8 mos

- Developed next gen semiconductor fabrication systems for Intel and others
- Designed and constructed industrial grade enclosure for proprietary electronics, rack mount computers, and high voltage three phase power supplies allowing rapid access for service and maintenance
- Performed failure mode and effects analysis on mechanical parts and assemblies
- Designed, tested, and implemented complex pneumatics for operation of conveyor system, precision fluid dispensing valve, cooling and heating systems
- Evaluated solenoid valves and electro pneumatic regulators from all pneumatics manufacturers comparing response times and hysteresis to qualify components

Environmental
Lights

Environmental Lights

Product Engineer

Feb 2011 – Oct 2011 · 9 mos

- Designed and tested LED lighting and power systems for custom applications including high profile television shows and large scale energy saving installations
- Developed high efficiency LED products to stimulate algae growth in bioreactors which consume exhaust gasses and produce renewable crude oil and feedstock
- Communicated directly with customers to determine unmet needs and demand for new products
- Introduced new products after extensive testing and created user friendly technical documents covering installation and operation of complex electrical systems
- Constructed professional photo studio and created product photos and videos
- Handled sales and technical support with 100% customer satisfaction and retention
- Performed market leading research on LED bulbs and magnetic driver compatibility with forward phase dimmers, reverse phase dimmers, and phase adaptive dimmers



Cognitive TPG

Mechanical Engineer

Jun 2008 – Oct 2010 · 2 yrs 5 mos

- Successfully managed engineering projects from prototyping to manufacturing
- Communicated with customers to establish requirements and deadlines
- Delivered products ahead of schedule
- Produced CAD models and drawings with geometric dimensioning and tolerancing
- Learned to design complex parts effectively for manufacturability with different materials and processes such as 5 axis machining, wire EDM, stamping, casting, injection molding, and rapid prototyping
- Created PCB design manual based on ASTM and ISO standards to reduce inconsistency among circuit layouts designed by different engineers
- Conducted thermal tests and stress tests to understand modes of failure and improve reliability

Education



Washington University in St. Louis

Bachelor of Science, Mechanical & Aerospace Engineering

Aug 2004 – May 2008 · 4 yrs

- Activities and Societies: University Nanosatellite Program, Engineering Leadership Council, Vertigo 2008 Event Director, Yoga, Martial Arts (Shotokan and Goju-Ryu)
- Advanced Coursework: Biomedical Engineering, Mechanical Design and Machine Elements, Manufacturing Processes, Mechanical Behavior of Composites, Advanced Space Mission Design, Advanced CAD and Finite Element Analysis (FEA)
- Additional Studies: Business Management, Micro and Macro Economics, Finance



San Dieguito Academy

Aug 2000 – May 2004 · 4 yrs

- Activities and Societies: Varsity Tennis, Leadership, Science Fair
- Advanced Coursework: College Computer Programming (Java)

Volunteering



Machine Learning Society

Hackathon Speaker, Technology Advisor

Jan 2020 – Mar 2020 · 3 mos

- Speaker and team advisor at the Kinetic Playground hackathon sponsored by Intel



Chopra Center for Wellbeing

Volunteer

Oct 2016 – Dec 2017 · 1 yr 3 mos

- Set up events exploring research on epigenetics, microbiome, and consciousness



Abraxas Community Farm

Founder, Educator, Advisor

Jun 2015 – May 2022 · 6 yrs 11 mos

- Donated 3000-gallon sustainable aquaponics system with 500 tilapia and custom hydroponics to Abraxas High School
- Rebuilt the whole living system on campus to start the Abraxas community garden
- Educated teachers and students on balancing the system and growing healthy food
- More info and pictures at <https://www.instagram.com/abraxasgardenkitchen>