

Curriculum Vitae for Thomas Avery Allsup

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Summary of Qualifications

- Product Development
 - Strong Verbal and Written Communicator
 - Computer Aided Design Specialist
 - Documentation
 - Project Management
 - Wide Technical Breadth
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Education

- Kennedy-Western University, Fall 2000 to Summer 2005: General Engineering PhD, distance based learning, course work completed, dissertation incomplete.
 - University of Texas at Arlington, Spring 1991 to Spring 1995: Mechanical Engineering Control and Modeling (Specifically in Fluidics) Ph.D. in GPA 3.41, course work completed, dissertation incomplete.
 - University of Texas at Arlington, Spring 1988 to Fall 1990: Masters of Science in Mechanical Engineering, GPA 3.13
 - Oklahoma State University, Fall 1983 to Spring 1987: Bachelors of Science in Mechanical Engineering, Overall GPA 3.26, in Major 3.31
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Thesis

- Title: Generation of Step Motor Ramp Tables for a Two Axis System
 - Supervising Professor: Stephen T. Kugle (deceased)
 - Abstract: The use of open-loop step motors in high speed, high load torque situations is quite limited in commercial applications due to variable inertias, frictions, and inductances. This thesis develops governing equations for a two-axis gimbal system with each axis driven by its own step motor with an emphasis on inertial variances. High speed operations require acceleration and deceleration ramp profiles. The equations are used in a computer program written for an IBM PC with an EGA display. The program predicts the ramp profiles for each motor in tabular and graphical output form for motor torque, system inertias, coupling ratio, and other parameters.
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Work Experience

- Anida Technologies, L.P. - 717 Lingco Drive, Suite 217, Richardson, TX 75080, (972)480-0110, www.anidatech.com, March 2004 to Present, Managing partner for an Engineering Partnership and serves as the chief mechanical designer. Clients range mainly small to medium sized companies that require engineering services mainly in the test and assembly area but some product development as well. Projects include police DVD based camera system, medical three axis therapeutic chair, high temperature and medical grade test sockets, semi-truck trailer tracking devices, and a host of other projects.
- QAI Laboratories, 1325 N. 108th East Avenue, Tulsa, OK 74116, (918)437-8333, www.qai.org, April 2016 to present, Contract auditing position for Texas locations around Dallas, Houston, and San Antonio areas with an emphasis on technical quality systems reviewing metrology and process controls as well as witnessing production and sampling test materials.
- Plastronics Socket Company, Inc., 2601 Texas Drive, Irving, TX 75062 (972)258-2580, www.plastronics.com, June 2002 to January 2004, Mechanical design engineer for burn-in socket manufacturer. During my short tenure I have designed several new products, many variations of existing products, as well as manual test and assembly fixtures. I used Autodesk's parametric program Inventor almost exclusively. Promoted to Engineering Manager.
- Allsup Consulting – Dallas, TX – April 1994 to June 2002. Originally part time but eventually full-time, self-employed, sole proprietor mechatronic consulting services for commercial and industrial clients with ranging emphasis from product design to programmable logic controllers. I also served other consulting engineering consultants, companies and individuals with contract engineering of new products and automation equipment. Contracts have ranged from mail sorting equipment design (recently received successful Patent submission award), VCSEL manufacturing and test fixturing and products, VCSEL product design, to sensor test fixturing and color sensor product design. Mechanical engineer with responsibilities for overseeing the entire development of a fast-track postal automation system including project scheduling, mechanical design, drafting, electrical interfaces, procurement, assembly, and debug.
- Optek Technology, Incorporated - 1215 West Crosby Road, Carrollton, TX 75006 (972)323-2411, www.optekinc.com, December 1997 to March 2000, Started as a staff engineering position with responsibilities for overseeing mechanical design of magnetic and optical sensor packages along with test and process fixtures. Recent assignments include fiber optic components. The position also required supervising several designers, a drafter, and a clerk. Promoted to Business Unit Manager position with responsibilities for overseeing all mechanical design of magnetic and optical sensor packages along with test and process engineering. Recent assignments include fiber optic components. The position was created in April 1999 to provide leadership and direction for a group of ten mechanical designers after I had proven myself as a supervisor over three automotive sensor designers. During the last two months, I had acquired the test and process engineering groups adding another thirteen individuals to the design service organization.
- Honeywell, Microswitch Optoelectronics Division - 830 East Arapaho Road, Richardson, TX 75081, August 1991 to December 1997, Senior mechanical engineering position with emphasis on plastic housing design responsibilities for medium volume, commercial, opto-electronic assemblies. Position required continuous liaison between the electrical engineering project leaders, the customers, various plastic molders, and the Juarez, Mexico production facility. I telecommuted from the Honeywell facility in Zurich, Switzerland for six months in 1995. My final year was spent developing VCSEL based connectorized products using TO packaging.

- Venture Engineering - 1313 Valwood Parkway #150, Carrollton, TX 75006, March 1989 to August 1991, Senior engineering position at an engineering consulting firm with design responsibilities for commercial printer peripheral products including cut sheet feeders for laser printers and printer stands for OEMs.
- Devtek Development Corporation - 437 Southfork #400, Lewisville, TX 75057, June 1987 to March 1989, Engineering position at a consulting firm with design and drafting responsibilities including a high speed step motor gear box, clean-room test stand for advanced printers, cut sheet feeder for an ink jet printer, and over seventy electro-mechanical drive systems including solenoids, brushed DC servo motors, brushless DC motors, step motors, and synchronous AC motors moving linear carriages, rotary mechanisms, multi-bar linkages, and custom designed cams.

Teaching Experience

- University of North Texas
 - Engineering Statics - Fall 2012, Fall 2014, Fall 2016, Spring 2016
 - Engineering Graphics – Spring 2016
 - Richland Community College – July 2014 to June 2014 – AutoCAD (four times), Blueprint Reading (five times)
 - Westwood Dallas – Spring 2007 – Introduction to Manual Drafting
 - ITT Richardson – Fall 2005 – Fall 2006 – Introduction to 2D CAD (AutoCAD – three times), 3D Modeling (Inventor – three times), Material Science (three times), Introduction to Personal Computers (once), Descriptive Geometry (three times), 3D Visualization (VIZ – once)
 - Everest Arlington – Spring 2004 – College Algebra (three sections)
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Skills

- Experienced team leader with the ability to initiate/manage cross-functional teams and multi-disciplinary projects
 - Critical thinking, decision making and problem solving skills
 - Planning and organizing
 - Leadership and delegation skills
 - Self-motivated and highly energetic
 - Strong verbal and personal communication skills
 - Tolerant and flexible in different situations
 - Excellent visualization skills
 - Computer Aided Design: SolidWorks, DraftSight, AutoCAD, Inventor, Unigraphics, Pro/Engineer 11.0 to 17.0, Eagle PCB
 - Computer Aided Machining: LinuxCNC, Mach3, HSMWorks
 - Development Software: Visual Basic 6.0, Visual Basic Net
 - Operating Systems: Windows, Linux
 - Applications: Microsoft Office, OpenOffice, Blackboard
 - Machining: Conventional and CNC Mill, Manual Lathe
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Publications

- “Converting a Vertical Mill to Vertical Lathe”, July/August 2017, **The Home Shop Machinist**, This article describes the design, fabrication, and use of an invention to hold standard quick change lathe tooling on a standard mill table.
 - “Finding a Place for a Small Laser Engraver in Your Shop”, Winter 2016, **Digital Machinist**, This article describes how a low power solid state laser can operate as a computer controlled engraver including an introduction to lasers, a review of a DIY laser engraver system, and the programming of the system.
 - “The True Cost of 3D Prints”, Spring 2016, **Digital Machinist**, This article describes how to calculate the cost of creating 3D printed parts based on the material cost, material volume, print time, and processing and includes an analysis of which parameters to consider and which can be ignored.
 - “Screw Threads with a 3D Printer”, Fall 2015, **Digital Machinist**, This article describes and compares various techniques of creating screw threads in a 3D printed part including direct printing, tapping, embedded nuts, and inserts.
 - *Understanding Engineering Drawings*, June 2015, self-published on www.scribd.com, This textbook provides an introduction to interpreting engineering drawings for entry level technical individuals and includes drawing views, dimensions, labels, and other topics.
 - “Finding a Place for your 3D Printer in your Shop”, Winter 2014, **Digital Machinist**, This article describes how 3D printers function and includes machine configuration comparisons, 3D printed filament material analysis, and software requirements.
 - “Migrating from Mach3 to LinuxCNC”, Fall 2014, **Digital Machinist**, This article describes the process of converting a Windows based Mach3 controlled CNC to a Linux based LinuxCNC controlled CNC with an emphasis on G-code differences between the two systems.
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Presentations

- SolidWorks World 2016 – Dallas, TX – How to Measure GD&T - A ninety minute presentation with Q&A – Abstract: A humorous presentation of traditional metrology of GD&T feature control frames assuming the SOLIDWORKS user does not have access to a coordinate measurement machine starting with required equipment and reviewing each type tolerance shape.
- SolidWorks World 2015 – Phoenix, AZ – I Know Everything About GD&T Except... - A ninety minute presentation with Q&A - Abstract: A humorous take on the list of Geometric Dimensioning and Tolerances (GD&T) exceptions and the underlying rules that seem to convolute concepts and hinder new users ability to quickly learn GD&T.
- SolidWorks World 2014 –San Diego, CA - The Big GD&T Theory - A ninety minute presentation with Q&A - Abstract: GD&T isn't rocket science unless you are designing rockets - Bazinga! The author will review his previous humorous presentations and add new material to illustrate various GD&T concepts used by SolidWorks designers to refine their geometric requirements.
- SolidWorks World 2013 – Orlando, FL - Hitchhiker's Guide to GD&T - A ninety minute presentation with Q&A - Abstract: A humorous review of Geometric Dimensioning and Tolerancing symbols with an emphasis on how they are applied in SolidWorks parts and assemblies including their presentation in drawings. Presentation draws examples from both the defacto standard ASME Y14.5M-1994 as well as the new Y14.5-2009.
- Burn-in & Test Strategies (BiTS) Workshop - 2012 – Mesa, Arizona – Geometric Dimensioning and Tolerancing for Burn in and Test Professionals – special three hour technical tutorial with stipend. - Abstract: Geometric Dimensioning and Tolerances (GD&T) is the common language used to describe the allowable variances of manufactured feature sizes, shapes, and locations beyond that which can be controlled by regular rectilinear and angular dimensions and tolerances. Semiconductor component and socket manufacturer drawings both use GD&T to insure their respective components fit and function mechanically together. The “How to Spell GD&T” tutorial previously presented at BiTS provided a detailed primer of how to read GD&T symbols on drawings and provides an introduction to this tutorial. This new tutorial is presented in three sections: Section one provides a highly abbreviated “How to Spell GD&T” review of the fundamentals of GD&T, Section two explains the first changes to the ASME Y14.5 standard in fifteen years particularly where those changes impact semiconductor professionals, and Section three contains a series of public domain semiconductor component drawings that will be carefully dissected to explain how GD&T was used correctly and incorrectly.
- SolidWorks World 2010 – Anaheim, CA - The Revenge of the Circled Letters - A ninety minute presentation with Q&A. Abstract: This is a review of the modifiers found in GD&T which symbols are literally circled letters and how these modifiers change the meaning of the associated GD&T tolerance zones and shapes.
- SolidWorks World 2009 – Orlando, FL - How To Spell GD&T - A ninety minute presentation with Q&A. Abstract: A detailed primer of how to read GD&T symbols on drawings which describes how the fourteen primary symbols are separated into five categories based on Form, Orientation, Profile, Runout and Location.
- Burn-in & Test Strategies (BiTS) Workshop – 2006 – Mesa, Arizona – Geometric Dimensioning and Tolerancing: A Primer for the BiTS Professional – special three hour technical tutorial with stipend. This was a retooled version of the original GD&T tutorial.

- Burn-in & Test Strategies (BiTS) Workshop – 2005 – Mesa, Arizona Socketing the Unsocketable, Comparing Geometric Tolerances of Semiconductor Devices to Burn-in and Test Sockets – A half hour long presentation with Q&A. Abstract: This presentation shows a typical leadless semiconductor package drawing with its GD&T controls and the associated test socket with its inherently flawed design.
- I have presented numerous times to various local user and technical groups on various topics ranging from SolidWorks, GD&T, 3D Printing, Laser Engraving to CNC Machining. I have also presented one day public and private one day seminars across the country.

Professional Associations

- American Society of Mechanical Engineers, Member 1984-2015. North Texas Group Webmaster 2012-2014. North Texas Group Secretary 2015.
- North Texas SolidWorks User Group, Member since 2006, Co-Chair since 2008. Help organize and actively participate in a quarterly 3D Parametric CAD meeting.
- Dallas-Fort Worth DraftSight User Group, Founder 2016. Founded a new group to promote 2D CAD program for local users.

Awards

- US Patent 6,644,651 B2, issued to inventor Thomas Allsup on November 11, 2003 for a ***Captured Belt Path Selection Apparatus and System*** developed at Siemens for handling bulk mail.

Certifications

- Precision Machine Operator Certificate, Richland Community College, 2014-2015
 - OSHA 10 General Industry Certification, May 2015
 - SolidWorks Certifications – Associate (C-3MXPXXVRAC), Professional (C-5B9VD78XB9), Sheet Metal (2013-C-UWTJ48ZGMN), Advanced Drawings : (C-XEDG22SRQA) and Weldments (C-9NHUN897N6)
 - American Society of Mechanical Engineers – Geometric Dimensioning and Tolerancing Professional, June 16, 1998, Certification Number GDTP T-0119
 - Unigraphics Certifications – Hybrid Modeling (1998), Sketcher (1999)
 - Texas State Professional Engineer, Number 71269 (expired)
 - Oklahoma Engineering Intern, 1987, EI Number 7640
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Interests

- Renewable energy – although there has only been a couple Anida Technologies clients that develop products in the renewable energy field, the idea of renewable energy is a captivating notion. I have collected a large library of green energy technical publications with an emphasis on alternative energy production methods.
 - Music – This is important to my entire family who has generations of musicians. I was the only high school student offered to try out for the Tulsa Opera and performed on stage in Giuseppe Verdi's *Il Trovatore* in 1982. I was trained as a vocal musician but after college, I started playing keyboards, guitar, and other instruments.
 - Cherokee Heritage – Almost since birth, I have heard the family stories of my great, great grandmother and how she got her name on the Dawes Rolls as a Cherokee. During middle and high school, being a member of the Cherokee tribe meant I was able to take advanced math tutoring under a Title IV Indian program. During college I received a scholarship for my GPA as an Indian student. My quantum, or amount of provable Cherokee blood percentage, means that normally I would be the last generation who can vote in tribal elections except my wife and I adopted two children through the Cherokee tribe.
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References

- Jesse Coley, President, Genesis Machine Shop, 1425 Century, Suite 207, Carrollton, TX 75006, Phone: (972) 323-6590, Fax: (972)323-6807, jesse@genesis-machine.com
- Bob Jemison, President, RJI Technical Sales, Rockwall, TX, Phone: (972) 771-6635 Fax: (972) 771-6637, bjemison@rjisa.com
- Garry Stevens, Electrical Engineer, Phone: 214.418.7541 , garry@stevens4.net
- Ray Blasingame, Electrical Engineer, Phone: 352.362.4330 , ray.blasingame@sbcglobal.com.
- Steve Flowers, sflowers.tarheel@hotmail.com, CAD Department head at ITT while I was teaching.
- Dr. Enrique Barbieri, Enrique.Barbieri@unt.edu, Professor and Chair at UNT - 940-369-7254