

Julian Andrew deMarchi

Ph.D. Mechanical Engineering / Mechatronics

Seeking challenging mechatronics work

Willing to travel for occasional business

Excellent written and verbal English

Solid team-building, project management and interpersonal skills

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Objective

Gainful employment with a small-to-medium sized division at a research-oriented firm with a fundamental interest in social and technological advancement using **mechatronic system design**. I would like to apply my skills in **mechatronics** to assist in the efforts of a focused research and design group.

Education

- 1995-1998 Ph.D. Mechanical Engineering (1998) • N.S.F. Research Fellow • Rensselaer Polytechnic Institute
Identification and control of dynamic friction, impact backlash and elastic compliance in machine tools
- 1992-1994 Master of Mechanical Engineering (1994) • Rensselaer Polytechnic Institute
Experimental degradation of flexible beam control in the presence of drive train nonlinearities
- 1990-1992 Bachelor of Mechanical Engineering (1992) • Columbia University School of Engineering and Applied Science
- 1987-1990 Bachelor of Physics (1992) • Bard College, a School of the Liberal Arts and Sciences • Annandale, New York
- 1984-1987 General Education Degree • Chapel Hill High School • Chapel Hill, North Carolina

Professional Experience

- 1999-2000 Firmware Engineer • I.D. Systems, Inc. • Silicon Alley, New York City
real-time embedded firmware development, system software, hardware, and sensor integration, product (re-)design
- 1998-1999 Consultant • Rensselaer Polytechnic / Xerox Corporation Wilson Center • Troy / Tarrytown / Webster, New York
servocontrol system design for proprietary xerographic product, applying Ph.D. research knowledge on friction control
- 1997-1999 Consultant • TCG, Inc. • Corinth, New York
on-site, intensive, mechatronics education workshops custom-tailored for engineering industry clients
- 1996-1997 Consultant • American Guidance, Navigation, and Control Corporation • Chatsworth, California
custom design, integration, and control of mechanical servopositioning test bed system with flexible beam attachment
- 1995 Consultant • General Electric Corporation Research and Development Division • Schenectady, New York
custom design concept for proprietary mechatronic boroscope
- 1993-1994 Teaching Assistant • Rensselaer Polytechnic Institute • Dept. of Mech. Eng., Aero. Eng. & Mechanics
Machine Dynamics: conducted help sessions, marked homework, administered tests
Mechatronics: developed electronics coursework, devised homeworks and tests, assisted with laboratory exercises
Mechatronic System Design: managed creative design team within budget and deadline constraints
- 1992 Ariane-5 Intern • German Aerospace (DLR) • Langer Grund (Lampholdhausen), Germany
automated FORTRAN analysis of particle-image velocimetry data of Vulcan rockets on the ESA's Ariane-5 project
- 1991 GPS Intern • Fokker Aircraft b.V. Electronics Laboratory • Schiphol (Amsterdam), Netherlands
programmed Pascal and dBase software for GPS signal processing to use on proprietary airbrake testing
- 1991 Interface Specialist • Columbia University Microelectronic Sciences Laboratory • Electrical Engineering Dept.
integrated and automated hardware and BASIC software for high-vacuum GaAs film-deposition experiments
- 1990 Laboratory Assistant • Columbia Presbyterian Medical Center, New York City • Orthopaedic Research Laboratory
customized MASS-11 database software and assisted with laboratory management
- 1989 Programming Intern • Systems Analysis Services • Auburndale, Massachusetts
customized dBase database software and installed customized computer sales and inventory systems

[References available upon request.]

Pending Publications

- “Comments on ‘Natural Frequencies and Dampings Identification using Wavelet Transform: Application to Real Data”
(by M. Ruzzene et alii, J. Mech. Sys. Sig. Proc. v11 n2 p207-218) *Julian A. de Marchi and Kevin C. Craig*
A letter to the editor of the Journal of Mechanical Systems and Signal Processing • submitted February 1999
- “Asymmetric Viscous and Kinetic Friction Identification via the Extended Logarithmic Decrement Method” and
“Identification of Arbitrarily Overdamped Second-Order Systems using Parametric Harmonic Oscillation”
Julian A. de Marchi and Kevin C. Craig
For submission to the ASME Journal of Dynamic Systems, Measurement and Control • for submission February 2000
- “A Model for Backlash and Compliance with Viscoelastic Impact Effects”
Julian A. de Marchi and Kevin C. Craig
For submission to the ASME Journal of Dynamic Systems, Measurement and Control • for submission February 2000

Refereed Publications

- “Mechatronic Design of an Inverted Pendulum for Engineering Education”
Celal S. Tüfekçi, Julian A. de Marchi, Kevin C. Craig and Selahattin Özçelik
Mechatronics '98 • 9-11 September 1998 • Högskolan i Skövde, Sweden
- “Real-Time Control of an Inverted Pendulum using Direct Model-Reference Adaptive Control”
Selahattin Özçelik, Julian A. de Marchi, Howard Kaufman and Kevin C. Craig
IFAC Conference on the Control of Industrial Systems • 20-22 May 1997 • École Nat. d'Ingenieurs de Belfort, France
- “Mechatronic System Design at Rensselaer” • Journal of Computer Applications in Engineering Education
Kevin C. Craig and Julian A. de Marchi • January 1996, volume 4, number 1, pages 67-78
- Rensselaer Mechatronics Newsletter • Rensselaer Mechatronics Research Group
Julian A. de Marchi, co-editor • a periodic publication • Rensselaer Polytechnic Institute
- “Experimental Degradation of Flexible Beam Control in the Presence of Drive Train Nonlinearities”
Julian A. de Marchi, Jun Ma and Kevin C. Craig
International Mechanical Engineering Congress and Exposition • 12-17 November 1995 • San Fransisco

Invited Presentations

- Research and Technology Seminar: “Mechatronics in Industrial Applications” *Julian A. de Marchi*
Xerox Corporation, Center for Research and Technology • 29 January 1999 • Webster, New York
- “Mechatronics in Machine Tools” *Julian A. de Marchi and Kevin C. Craig*
Configuration and Control Aspects of Mechatronics • 21-26 September 1997 • Tech. Univ. Ilmenau, Germany
- “Undergraduate Mechatronic Design at Rensselaer: Philosophy and Practice” *Julian A. de Marchi*
Focused/Vision and Control Aspects of Mechatronics • 16-21 September 1996 • Univ. do Minho, Guimarães, Portugal
- “Mechatronic System Design: Philosophy and Methodology” *Julian A. de Marchi and Kevin C. Craig*
University Programs on Computer-Aided Engineering Design and Manufacturing • 19 July 1996 • the University of Virginia
- “Mechatronic System Design at Rensselaer” *Kevin C. Craig and Julian A. de Marchi*
International Conference on Recent Advances in Mechatronics • 14-16 August 1995 • Bogaziçi Univ., Istanbul, Turkey

Academic Honors

- 1994-1997 Graduate Research Fellow • National Science Foundation (USA) • Grant No. GER-9354913
“Supporting the most highly qualified graduate students in major research universities with mechatronics expertise”
- 1997 Inductee, Phalanx Honor Society • Rensselaer Polytechnic Institute
For outstanding contributions to student life at Rensselaer via work at WRPI 91.5fm/Radio Rensselaer
- 1995 Who's Who in American Colleges and Universities • Rensselaer Polytechnic Institute
For outstanding work as a university student via work at WRPI 91.5fm/Radio Rensselaer
- 1989-1990 Dean's List of Honors • Bard College *For G.P.A. exceeding 3.5/4.0*

Skills and Proficiencies

assembly • BASIC • C • C++ • HTML • Perl • STL • FORTRAN • L^AT_EX • Pascal
 MS DOS • MS Windows 95/NT • Neuron 3150 • UNIX • 80x86, 68c & k architectures • TMS 320c30/40 DSP
 AutoLev • FrameMaker • LabVIEW • Maple • Matlab/Simulink • PRO/Engineer • Working Model (3D)
 analog and digital electronics • embedded processor interfacing • numerical and control computing • control system design

Mechatronic Design

Mechatronic Project Management (TA)	Optimal Design of Multidisciplinary Systems
Mechatronic System Design (TA)	Creative Design for Engineers and Managers
Mechatronics (TA)	Creativity Workshop
Engineering Design	Computer-Aided Design and Graphics
Mechanical Engineering Experimentation (Planning)	Data Analysis (Statistics)
Methods of Experimental Physics (Planning)	

Control System Design

Adaptive Systems	Optimal Control Theory
Nonlinear Control	Neural Network Computing
Systems Analysis Techniques	Classical Control Systems
Control System Design and Digital Implementation	Digital Control Systems
Numerical Methods	Information Processing

Mechanical Engineering

Machine Dynamics (TA)	Vibrations
Applied Multibody Dynamics	Dynamics and Control of Multibody Systems
Mechanical Engineering Laboratory	Solid Mechanics (Statics)
Energy Sources and Conversion	Thermodynamics and Heat Transfer
Experimental Physics	Fluid Mechanics

Electrical Engineering

Mechatronics: Electronics Lab (co-author)	Microprocessor Laboratory
Analog and Digital Electronics	Electrostatics and -dynamics

Leadership Background

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| 1994 - 1996 President | • WRPI 91.5fm Stereo/Radio Rensselaer • Rensselaer Polytechnic Institute |
| 1995 Acting Chief Engineer | • WRPI 91.5fm Stereo/ Radio Rensselaer • Rensselaer Polytechnic Institute |
| 1994 Assistant Program Director | • WRPI 91.5fm Stereo/ Radio Rensselaer • Rensselaer Polytechnic Institute |
| 1993 Library Manager | • WRPI 91.5fm Stereo/ Radio Rensselaer • Rensselaer Polytechnic Institute |
| 1991 - 1992 Secretary | • American Society of Mechanical Engineers • Columbia University SEAS |
| 1989 - 1990 Secretary and Cultural Attaché | • Society of Physics Students • Bard College |
| 1988 President | • Amnesty International • Bard College |
| 1988 Co-Founder | • Natural Food Cooperative • Bard College |
| 1987 - 1988 Co-Captain | • Ultimate Frisbee Team • Bard College |