

Nathan Shepard

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- Objective** While my education and experience lead me toward a research or product development position, I also enjoy the personal interaction of consulting and sales. To that end, I am looking for a position either in a research and development group or in a technical sales environment.
- Education**
- University of California, San Diego*
Master of Science, Bioengineering GPA: 3.56 Sept 2007
Thesis: Design of a Coordinated System for Real-time 3-D Image Construction via Confocal Microscopy *San Diego, CA*
- The University of Texas at Austin*
Bachelor of Science, Electrical Engineering GPA: 3.65 May 2006
Emphasis: Biomedical Engineering *Austin, TX*
High-speed Digital Signal and Image Processing
- Experience**
- Sales Associate, LeonardoMD Online Medicine** 2006-Present
Advised physicians regarding medical practice management software. *San Diego, CA*
Managed lead marketing campaign and contributed to website design.
- Student Research Associate, Institute for Advanced Technology** 2003-2006
Designed and implemented DSP control for a synchronous pulsed alternator pair. *Austin, TX*
Simulated and tested synchronous alternators as a pulsed power supply.
Analyzed, documented large-scale feasibility of synchronous pulsed alternators.
Experimentally characterized electro-mechanical dynamics of an electrostatic lifter.
- Skills**
- Extensive experience in confocal microscopy, control, and high-speed imaging
Training and two years experience implementing high-speed DSP control
Applied circuit design, manual fabrication, and testing
High proficiency with C, C++, LabVIEW, Microsoft Office
Experience with Saber, PSpice
Machine shop experience with the milling machine
- Awards**
- Cockrell Scholarship, University of Texas Department of Engineering Jan 2006
1st Place, J.J. Pickle Summer Engineering Internship Competition Aug 2003
National Merit Scholar, University of Texas at Austin Aug 2003
International Baccalaureate Diploma, L.C. Anderson High School May 2003
Rank of Eagle Scout, Boy Scouts of America Mar 2002
- Publications**
- N. Shepard, Y.Y. Chen, and J. Mallick. "Physical Scale Model Alternators as a Pulsed-Power Source Simulator" *IEEE Transactions on Mechanics*, vol 43(1). Jan 2007
- Y. Y. Chen, N. Shepard, and J. Mallick. "Experimental Results from a Scale Model Alternator Pair as a Pulsed Power" *IEEE Transactions on Mechanics*, vol 43(1). Jan 2007
- Shepard, Nathan. "Electrostatic Lifters: Thrust Produced by a Lightweight, Asymmetric Capacitor," *Applied Research Laboratories Report ARL-LR-D0-03-01*, G. Wilson, ed., University of Texas at Austin, Texas, 2003, pp. 195-208. Aug 2003
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Statement of Purpose

Many complementary opportunities and experiences have led me towards an interest in the biomedical device field generally and towards neural prosthesis specifically.

I graduated high school in 2003 with an [International Baccalaureate Diploma](#) and as a National Merit Scholar. I was awarded a full, merit-based scholarship from the University of Texas at Austin (UT) to pursue an undergraduate degree in Electrical Engineering.

Upon high school graduation, I was offered a summer internship at the [Institute for Advanced Technology](#) (IAT) through [Applied Research Laboratories](#) investigating high-voltage physics, and I was awarded 1st place for my research out of 30 interns participating in the program.

As a result, I was offered a full-time position at IAT in high-speed control and digital signal processing (DSP). My job was to modify two scale models of 3-phase generators into synchronous pulsed-power alternators, demonstrate and analyze their performance, and determine the feasibility of up-scaling the alternators. The three-year project taught me a great deal about working in a research environment, publishing results, and attracting and retaining government and private sector funding.

It was during my sophomore year at UT that I read an article in Scientific American on epiretinal implants that inspired my interest in visual prosthesis. Upon further research of neuroprosthesis work in progress at Johns Hopkins, USC, and UCSD, I decided to pursue this admittedly narrow field as a career goal. I graduated UT with an emphasis in biomedical engineering and in high-speed digital signal and image processing.

My education at UT afforded me relevant experience in designing and building high-gain, high-SNR biomedical devices from components, including an electromyogram, an electrocardiogram, an electrooculogram, and an electroencephalogram. Successes with these devices interested me further, but my electrical engineering education lacked an in-depth study of physiology. In order to meet this need, I applied for a rigorous masters program in bioengineering at UCSD working in the [Jacobs Retina Center](#) under [Dr. Gabe Silva](#).

At UCSD, I have been exposed to the relevant neurophysiology of the eye, and have been fortunate in my research with the [Silva Research Group](#), imaging and quantifying the neural retina. I defended my thesis in September, 2007, and have recently graduated UCSD with a MS degree.

Shortly after moving to San Diego, I began to work for [LeonardoMD](#), a small (12 employees) company that provides online practice management software to medical practices nationwide. I chose a sales position mostly to pay for out-of-state tuition at UCSD, but through my work at LeonardoMD I have learned a lot about the technical sales process, marketing techniques, and about small group working dynamics. Originally hired as a part-time sales assistant, I have moved into a full-time, salaried position and am responsible for advising physicians, managing the company's lead marketing campaign, and contributing to website design and optimization.

It is my intension, having graduated UCSD, to commit to a long-term engineering position at a biomedical device firm and to pursue a doctorate degree in biomedical engineering part-time developing a visual prosthesis.

About Me

I was born and raised in Austin, TX, and I return about four times a year to visit friends and family there. I moved to California last September, and have enjoyed living in San Diego very much. I sail recreationally and competitively on the weekends, and I give sailing lessons in my free time. This past year, I have also enjoyed tutoring high school students on weekday evenings through [Eureka! One-on-One Review](#). I play tennis whenever I get the chance, and I like to swim whenever the tourists aren't in town. I have maintained a freshwater aquarium for about two years now, and I like it so much I am considering investing in a saltwater tank once I am committed to a career job.

On my own time, I usually like to have a project underway, like building a boat, repairing a TV, working on my car, building a home theater, or running an amateur radio station, for example. Recently, I have been playing with new applications of neural networks, which seem very powerful to be so underutilized.

References

For a complete list of references, or for more information, please contact Nathan Shepard at nshepard@ucsd.edu.

Unofficial Transcript

The University of California, San Diego

Nathan Shepard

General Information

Student: [Shepard, Nathan R](#)
 Major: [Bioengineering](#)
 Intended Degree: [Master of Science](#)

Academic History: Cumulative Summary

Grade Option	UC-Crdts Attm	Crdts Pssd	UC-GPA Crdts	UC-Grade Points	UC-GPA
LETTER	36.00	36.00	36.00	128.00	3.555
S/U	13.00	13.00	0.00	0.00	0.000
TOTAL	49.00	49.00	36.00	128.00	3.555

All credits are in quarter units. Cumulative summaries on this record may reflect adjustments for repeated courses and/or other adjustments made in accordance with UCSD academic policies.

UCSD Graduate Courses by Term

SP07:

Subject	Course	Course Title	Units	Grade	Points
BENG	207	Neurophysiology	4.00	A-	14.80
BENG	247C	BioNanotechnology	4.00	A	16.00
BENG	250B	Advanced Biomechanics	4.00	B+	13.20
BENG	299	Graduate Research	4.00	S	0.00
Term Credits Passed:	16.00				
Term Grade Points:	44.00				
Term GPA Credits:	12.00				
Term GPA:	3.666				

WI07:

Subject	Course	Course Title	Units	Grade	Points
BENG	230B	Cell and Molecular Biolog	4.00	A-	14.80
BENG	247B	BioElectronics	4.00	A+	16.00
BENG	250A	Biomechanics	4.00	C	8.00
BENG	253	Biomedical&Transport Phen	4.00	A	16.00
Term Credits Passed:	16.00				
Term Grade Points:	54.80				
Term GPA Credits:	16.00				
Term GPA:	3.425				

FA06:

Subject	Course	Course Title	Units	Grade	Points
BENG	230A	Biochemistry	4.00	B+	13.20
BENG	247A	Advanced BioPhotonics	4.00	A	16.00
BENG	281	Seminar in Bioengineering	1.00	S	0.00
BENG	299	Graduate Research	8.00	S	0.00
Term Credits Passed:	17.00				
Term Grade Points:	29.20				
Term GPA Credits:	8.00				
Term GPA:	3.650				

Academic Events

MSTR'S ADVANCED TO CANDIDACY

04/13/2007

Unofficial Transcript

The University of Texas at Austin

Nathan Shepard

B S Elec Engr, I: Sig Img Prc II: Biomed (2002-2004)

Crse Abr & Nbr	Gr	Course Title	Type	Sem	Unique	Hrs Cnt	Hrs Not Cnt
E 316K	A	MASTERWORKS OF LITERATURE	Credit by exam	2003 fall	12240	3	
M 305G	A	ELEM FUNCTS AND COORD GEOM	Cred by exam	2003 fall	26020		3
M 408K	A	DIFFERENTIAL CALCULUS	Cred by exam	2003 fall	26111	4	
M 408L	CR	INTEGRAL CALCULUS	Cred by exam	2003 fall	26141	4	
PHY 302K	A	GEN PHY-TECH CRS-MECH/HEAT/SND	Cred by exam	2003 fall	26990		3
PHY 302L	A	GEN PHY-TECH CRS-ELEC/LGHT/NUC	Cred by exam	2003 fall	27020		3
PHY 102M	A	LABORATORY FOR PHY 302K	Cred by exam	2003 fall	27050		1
PHY 102N	A	LABORATORY FOR PHY 302L	Cred by exam	2003 fall	27080		1
PHY 303K	A	ENGINEERING PHYSICS I	Cred by exam	2003 fall	27110	3	
PHY 303L	CR	ENGINEERING PHYSICS II	Cred by exam	2003 fall	27140	3	
PHY 103M	A	LABORATORY FOR PHY 303K	Cred by exam	2003 fall	27170	1	
PHY 103N	CR	LABORATORY FOR PHY 303L	Cred by exam	2003 fall	27200	1	
RHE 306	CR	RHETORIC AND COMPOSITION	Cred by exam	2003 fall	20127	3	
SPN 506	A	FIRST-YEAR SPANISH I	Cred by exam	2003 fall	22310	5	
SPN 507	A	FIRST-YEAR SPANISH II	Cred by exam	2003 fall	22340	5	
SPN 312K	CR	SEC-YR SPN I: ORAL EX/RD/COMP	Cred by exam	2003 fall	22430	3	
SPN 312L	CR	SEC-YR SPN II: ORAL EX/RD/COMP	Cred by exam	2003 fall	22460	3	
E E 302	A	INTRO TO ELEC AND COMP ENGR	Residence	2003 fall	14455	3	
E E 306	A	INTRODUCTION TO COMPUTING	Residence	2003 fall	14495	3	
ECO 304K	B	INTRODUCTION TO MICROECONOMICS	Residence	2003 fall	29765	3	
GOV 310L	B	AMERICAN GOVERNMENT	Residence	2003 fall	35560	3	
M 408M	B	MULTIVARIABLE CALCULUS-HONORS	Residence	2003 fall	56955	4	
E E 411	B	CIRCUIT THEORY	Residence	2004 spr	14045	4	
E E 312	A	INTRODUCTION TO PROGRAMMING	Residence	2004 spr	14055	3	
E E 316	A	DIGITAL LOGIC DESIGN	Residence	2004 spr	14195	3	
M 427K	B	ADV CALCULUS FOR APPLICATNS I	Residence	2004 spr	55240	4	
ARH 366P	B	FUTURISM IN ITALY	S	2004sum	00001	3	
ITL 507	A	FIRST YEAR ITALIAN I	S	2004sum	00001	5	
A S F000		AFFILIATED PROG STUDY ABROAD	Residence	2004sum	70055		

HIS 315K	A	U.S. HISTORY 1	Transfer	2004 fall	3
E E 313	C	LINEAR SYSTEMS AND SIGNALS	Residence	2004 fall 15345	3
E E 319K	A	INTRO TO MICROCONTROLLERS	Residence	2004 fall 15445	3
E E 322C	B	DATA STRUCTURES	Residence	2004 fall 15500	3
M 340L	A	MATRICES AND MATRIX CALCS	Residence	2004 fall 58580	3
E E 325	B	ELECTROMAGNETIC ENGINEERING	Residence	2005 spr 14920	3
E E 333T	A	ENGINEERING COMMUNICATION-W	Residence	2005 spr 14980	3
E E 438	B	ELECTRONIC CIRCUITS I	Residence	2005 spr 15010	4
E E 351K	A	PROBABILITY & RANDOM PROCESSES	Residence	2005 spr 15195	3
E E 155	A	ENGR SMNR-LEADERSHIP	Residence	2005 spr 15205	1
E E 366	A	ENGINEERING ECONOMICS I	Residence	2005 spr 15390	3
GOV 3TX	A	TEXAS STATE/LOCAL GOV	Transfer	2005sum	3
HIS 315L	A	U.S. HISTORY 2	Transfer	2005sum	3
E E 339	A	SOLID-STATE ELECTRONIC DEVICES	Residence	2005 fall 15920	3
E E 345S	A	REAL-TIME DIGITAL SIG PROC LAB	Residence	2005 fall 16005	3
E E 362K	A	INTRO TO AUTOMATIC CONTROL	Residence	2005 fall 16120	3
E E 371D	B	INTRO TO NEURAL NETWORKS	Residence	2005 fall 16220	3
E E 374K	A	BIOMEDICAL ELECTRONICS	Residence	2005 fall 16230	3
E E 351M	B	DIGITAL SIGNAL PROCESSING	Residence	2006 spr 15575	3
E E 464C	A	CORPORATE SENIOR DESIGN PROJ-W	Residence	2006 spr 15675	4
E E 371R	A	DIGITAL IMAGE & VIDEO PROCESS	Residence	2006 spr 15775	3
E E 374L	A	APPLICATIONS OF BIOMED ENGR	Residence	2006 spr 15790	3
PHY 333	A	MODERN OPTICS	Residence	2006 spr 59105	3

Total Hours: 145 11

The grade point average (GPA) has been calculated by the official method.

GPA hours = 106.0000
Grade points = 387.0000
GPA = 3.6509

The E E grade point average (GPA) has been calculated by the official method.

GPA hours = 57.0000
Grade points = 205.0000
GPA = 3.5964

The tech grade point average (GPA) has been calculated by the official method.

GPA hours = 76.0000
Grade points = 273.0000
GPA = 3.5921