

# Dr. Tae

## Curriculum Vitae

### PERSONAL INFORMATION

Full Name: Yung Tae Kim  
Location: CHICAGO, IL  
USA  
Website: <http://DrTae.org/>  
Email: [dr.tae@drtae.org](mailto:dr.tae@drtae.org)  
Citizenship: USA

### EDUCATION

Ph.D. in Physics University of Illinois at Urbana-Champaign Dissertation: "Computational Studies of Dendritic Crystal Growth"	December 2003 Urbana, IL USA
M.S. in Physics University of Illinois at Urbana-Champaign	August 1998 Urbana, IL USA
B.S. in Physics, Highest Honor Georgia Institute of Technology	June 1996 Atlanta, GA USA

### iOS DEVELOPMENT

**Not YYZ by Dr. Tae**  
For iPhone, iPod touch, and iPad  
<http://itunes.apple.com/us/app/not-yyz/id427534033?mt=8>

Released  
March 29, 2011

Not YYZ takes the concept behind Rush's instrumental "YYZ" and turns it into a game of musical Morse code Mad Libs.

<b>VIDEO GAME DEVELOPMENT</b>	<p><b>Robomodo</b>  <b>Skateboarding Physicist and Controls Engineer/Designer for Tony Hawk: SHRED</b>  I took the initiative in redesigning the control system for Tony Hawk: SHRED and made major improvements in consistency and accuracy with the goal of emulating the feel of real skateboarding. Most significantly, I designed the algorithm that allows players to do 1-to-1 rotations using the wireless skateboard peripheral. My work on <i>Tony Hawk SHRED</i> was the subject of a <i>Chicago Reader</i> cover story ( <a href="http://bit.ly/9aNzWo">http://bit.ly/9aNzWo</a> ).</p> <p><b>Robomodo</b>  Consultant for the development of <i>Tony Hawk: RIDE</i> for Activision  Skateboarding talent for audio effects in <i>Tony Hawk: SHRED</i></p>	<p>March 2010 – October 2010</p> <p>2008-2009</p>
<b>TEACHING EXPERIENCE</b>	<p><b>Member, Advisory Council</b>  <b>Puget Sound Community School</b>  <a href="http://www.pscs.org/">http://www.pscs.org/</a></p> <p><b>Science Instructor</b>  <b>SongAm Space Center, South Korea</b>  <a href="http://www.starsvalley.com/">http://www.starsvalley.com/</a>  Space and Science Camp in English</p> <p><b>Visiting Assistant Professor</b>  <b>Department of Physics and Astronomy</b>  <b>Northwestern University</b></p> <p>Gateway Science Workshop for Physics 130-3  Searle Center for Teaching Excellence  Faculty Trainer for Student Facilitators</p> <p>Physics 130-3  College Physics 3  Geometric optics, interference and diffraction, the quantum nature of particles and light, atomic and nuclear phenomena (algebra based).</p> <p>Physics 135-2  General Physics 2  Electrostatics, magnetostatics, DC and AC circuits, time-varying fields, Maxwell's equations (calculus based).</p> <p>Physics 330-1  Classical Mechanics 1  Newton's laws, projectile motion, momentum and angular momentum, energy, conservation laws, oscillations.</p>	<p>August 2011 – Present</p> <p>July 26 – August 8 2009</p> <p>2008-2009</p> <p>Spring 2009</p> <p>Spring 2009</p> <p>Fall 2008</p> <p>Fall 2008</p>

Physics 330-2 Classical Mechanics 2 Calculus of variations, Langrangian and Hamiltonian mechanics, two-body central force problems, noninertial reference frames, rotational motion of rigid bodies, coupled oscillators and normal modes, nonlinear dynamics and chaos.	Winter 2009
<b>Visiting Assistant Professor</b> <b>Department of Physics</b> <b>DePaul University</b>	2006-2008
Physics 150 General Physics I Introduction to classical mechanics without calculus	Fall 2006
Physics 151 General Physics II Introduction to Heat, Sound, and Light without calculus	Winter 2007
Physics 200 Light and Atoms Introduction to optics and quantum phenomena for non-science majors	Fall 2006 Spring 2007 Spring 2008
Physics 206 Sound and Acoustics Introduction to acoustics for non-science majors	Fall 2007 Winter 2008
Physics 223 and Art 223 Light, Color, and Photography Introduction to optics and its applications in photography and videography (for non-science majors)	Fall 2007
Physics 236 The Science of Digital Audio Introduction to the physics behind sound, digital information, digital recording and playback technologies	Winter 2008 Spring 2008
Interdisciplinary Studies Program 120 Mathematical and Technological Literacy	Winter 2007 Spring 2007

**Visiting Assistant Professor** 2005-2006  
**Department of Physics**  
**Lake Forest College**

Physics 110 Fall 2005  
Introductory Physics I  
Introduction to classical mechanics without calculus  
Responsibilities: Laboratory sections

Physics 111 Spring 2006  
Introductory Physics II  
Introduction to electricity and magnetism without calculus  
Responsibilities: Laboratory sections

Physics 120 Fall 2005  
General Physics 1  
Introduction to classical mechanics with calculus  
Responsibilities: Laboratory sections

Physics 121 Spring 2006  
General Physics II  
Introduction to electricity and magnetism with calculus  
Responsibilities: Laboratory sections

Physics 210 Fall 2005  
Modern Physics  
Introduction to special relativity and quantum theory  
Responsibilities: Lectures and laboratory section

Physics 250 Spring 2006  
Analytical Mechanics  
Classical mechanics at the intermediate level  
Responsibilities: Lectures

**Graduate Teaching Assistant** 2000-2003  
**Department of Physics** 1996-1998  
**University of Illinois at Urbana-Champaign**

Physics 111 Spring, Summer 2003  
Introduction to Mechanics for Scientists and Engineers Fall 2001  
Responsibilities: Fall 1996-Spring 1998  
Teaching discussion sections and mentoring other TAs  
Other accomplishments:

- Developed a series of lectures given as reviews for exams
- Guest lecturer on several occasions.
- Developed a discussion section focused on conceptual understanding of mechanics

Physics 114 Introduction to Quantum Physics for Scientists and Engineers Responsibilities: Discussion Sections and Mentoring TAs	Spring 2002
Physics 113 Introduction to Thermal Physics for Scientists and Engineers Responsibilities: Discussion Sections and Mentoring TAs	Spring 2002
Physics 101 College Physics: Mechanics, Heat, and Sound (Non-calculus) Responsibilities: Discussion Sections	Spring 2001
Physics 100 Thinking About Physics Preparatory course for students entering calculus-based sequence Responsibilities: Discussion Sections	Fall 2000
<b>Undergraduate Teaching Assistant</b> <b>School of Mathematics</b> <b>Georgia Institute of Technology</b>	1996
MATH 3308 Differential Equations Responsibilities: Recitation Sections	Winter and Spring Quarters 1996

**RESEARCH  
EXPERIENCE**

<b>Postdoctoral Scholar</b> <b>Center for Theoretical Biological Physics</b> <b>University of California, San Diego</b>	2004
Research: Modeling molecular evolution of genetic circuits	
<b>Graduate Research Assistant</b> <b>Department of Physics</b> <b>University of Illinois at Urbana-Champaign</b>	1998-2003
Advisor: Nigel Goldenfeld Research: Use of phase-field models, level set methods, and cell dynamical systems to study pattern formation during solidification	2002-2003 1998-2000
Advisor: Gary Gladding Research: Physics Education—improving web-based homework and interactive examples for calculus-based introductory physics courses.	Summer 2001

**Undergraduate Research Assistant** 1994-1996  
**School of Physics**  
**Georgia Institute of Technology**

Advisor: Kurt Wiesenfeld 1996  
Research: Scaling behavior of avalanche size distributions  
in cellular automata models of sand piles

Advisor: William Ditto 1995  
Research: Stochastic resonance in coupled  
electronic oscillators

Advisor: Kurt Wiesenfeld 1994  
Research: Theory of single-trigger stochastic resonance  
with a refractory time

**CONFERENCES**

PNAIS Fall Educators Conference 2011 October 14, 2011  
Bright Ideas: Innovation and Change in the Classroom Redmond, WA  
Featured Speaker USA  
“What Does Everybody Need To Know?”

TEDxEastsidePrep: Evolution of Instruction–Inquiry, May 12, 2011  
Innovation, Identity Kirkland, WA  
<http://www.tedxeastsideprep.com/> USA  
Invited Speaker  
“Can Skateboarding Save Our Schools?”  
<http://drtae.org/can-skateboarding-save-our-schools/>

UX for Good January 29, 2011  
<http://www.ux4good.com/> Chicago, IL  
Invited expert and “spark” USA

American Physical Society Topical Conference: January 2004  
Opportunities in Biology for Physicists San Diego, CA  
(Attendee) USA

University of Illinois at Urbana-Champaign January 2003  
Annual Faculty Retreat on Active Learning: Urbana, IL  
The Scholarship of Teaching and Learning USA  
(Attendee)

American Physical Society Topical Conference: September 2002  
Opportunities in Biology for Physicists Boston, MA  
(Attendee) USA

Cargèse Institute of Scientific Studies Summer School: July 2000  
Multi-Scale Dynamics in Soft Matter and Biophysics Cargèse, Corsica  
(Poster Presentation: “Computation of Dendritic France  
Microstructures Using a Level Set Method”)

Les Houches Center of Physics Workshop: Dynamics and Morphogenesis of Branching Structures (Poster Presentation: "Computation of Dendritic Microstructures Using a Level Set Method")	October 1999 Les Houches, France
Gordon Research Conference: Gravitational Effects in Physico-Chemical Systems (Poster Presentation: "Computation of Dendritic Microstructures Using a Level Set Method")	June 1999 Henniker, NH USA
American Physical Society Centennial Meeting (Contributed Talk: "Universal Dynamics of Phase-Field Models for Dendritic Growth")	March 1999 Atlanta, GA USA

**AWARDS AND  
HONORS**

List of Outstanding Teaching Assistants American Association of Physics Teachers	1998 Urbana, IL USA
Scott Anderson Physics Assistant Award Outstanding Teaching Assistant Department of Physics University of Illinois at Urbana-Champaign	1997 Urbana, IL USA
Excellence in Teaching Award Department of Physics University of Illinois at Urbana-Champaign	1996-1998, 2001-2002 Urbana, IL USA
Incomplete List of Teachers Ranked as Excellent by Their Students University of Illinois at Urbana-Champaign	1996-1998, 2001-2002 Urbana, IL USA
Barry M. Goldwater Scholar Barry M. Goldwater Scholarship and Excellence in Education Program	1995-1996 Atlanta, GA USA
Dean's List and Faculty Honors Georgia Institute of Technology	1993-1996 Atlanta, GA USA

**PUBLICATIONS** Yung Tae Kim, Nigel Goldenfeld, and Jonathan Dantzig.  
"Computation of Dendritic Microstructures Using a Level Set Method".  
Phys. Rev. E **62**, 2471 (2000)

Yung Tae Kim, Nikolas Provatas, Nigel Goldenfeld, and Jonathan Dantzig.  
"Universal Dynamics of Phase-Field Models for Dendritic Growth".  
Phys. Rev. E (Rapid Communications) **59**, R2546 (1999)