Jukka T. Virtanen

CONTACT INFORMATION

1 Agate
Irvine, CA 92614 USA

Voice: (310) 963 0721
E-mail: semisimplemath@gmail.com

EDUCATION

University of California Los Angeles, Los Angeles, California

Ph.D. Mathematics June 2009

- Thesis Title: Structure of Elementary Particles in Non-Archimedean Spacetime
- Advisor: Professor Veeravalli S. Varadarajan

University of California Berkeley, Berkeley, California

B.S. Mathematics, July 1998

B.S. Physics, July 1998

AWARDS

- Distinguished Teaching Award, UCLA Mathematics, 2016

ACADEMIC EXPERIENCE

University of California Los Angeles, Los Angeles, California

Adjunct Professor at UCLA for Mathematics and Program In Computing (PIC) **September 2014 to August 2018**

- 2016 Mathematics Department Distinguished Teaching Award.
- Instructor for various PIC and Mathematics courses.
- Faculty advisor for several PIC courses.
- Reshaped a course curricula for PIC courses.
- Wrote lectures that are still used as a model for future courses.

PIC Assistant Adjunct Professor at UCLA **September 2010 to June 2014**

- Instructor for PIC (Program In Computing) and Various Mathematics courses.

Graduate Student **September 2000 to June 2009**

Teaching assistant **September 2005 to June 2009**

- Various Mathematics and PIC courses.

University of California Berkeley, Berkeley, California

Undergraduate Researcher **March 1997 to December 1998**

- Worked in Lawrence Berkeley Laboratory for Professor Kam-Biu Luk.
- Participated in analysis of data from HyperCP (E871 at Fermilab) experiment, which was a fixed-target experiment designed to search for direct CP Violation in strange-baryon decays.

Undergraduate student **January 1994 to July 1998**

Professional Experience

Amroy Inc., Los Angeles, California

Computer programmer **November 2001 to May 2004**

- Programmer, IT manager and web designer.
- Programming projects included building interfaces for laboratory equipment.

Burstein Technologies, Irvine, California

Computer programmer and optical drive specialist **November 1998 to September 2000**

- Designed and wrote C++ code to interface with compact disc optical devices.
- Designed assembly code to interface with automated disc devices.
- Came up with ideas on how to improve methods that were being used at the time in Burstein Technologies research and development.

Technical Skills

Knowledge of machine learning, neural nets, Tensor Flow.

Programming languages: C++, C, JavaScript, PHP, Python and others.
Web Technologies experience: JQuery, MySQL, HTML5, SQLite3, XHTML, XML (and DTDs and schemas).
Other programming experience: iOS app and game development using Cocos 2D-x (C++). Familiarity with physics engines (Box 2D). Web application development.

Hardware and software experience in compact disc drives.

Applications: LaTeX, Microsoft Office, and other common productivity packages for Windows, OS X, and Linux platforms , Adobe photoshop

Mathematical Expertise

Lie Algebras, representations of algebraic groups over locally compact fields, functional analysis. Chevalley groups, complex analysis, differential equations.

Physics Expertise

Quantum mechanics and quantum field theory. Special relativity.

Research Interests

Neural nets, deep learning. Representations of p-adic Poincaré and Galilean groups.

Publications

V. Varadarajan and J. Virtanen, *Structure, Classification, and Conformal Symmetry, of Elementary Particles over Non-Archimedean SpaceTime*, Letters in Mathematical Physics, (2009), 171 - 182.
V. S. Varadarajan and J. Virtanen, *Structure, Classification, and Conformal Symmetry, of Elementary Particles over Non-Archimedean SpaceTime*, p-adic numbers, ultrametric analysis and applications Vol. 2 No. 2 2010
Jukka Virtanen and David Weisbart, *Elementary particles on p-adic spacetime and temperedness of invariant measures*, p-adic Numbers, Ultrametric Analysis, and Applications, Volume 6, Issue 4, pp 318-332, October 2014
Taylor, David and Varadarajan, V S and Virtanen, Jukka and Weisbart, David *Temperedness Of Measures Defined By Polynomial Equations Over Local Fields*, Pacific Journal Of Mathematics, Volume 296, Issue 1, 2018