

Curriculum Vitae

Arthur W. Chou
Department of Mathematics and Computer Science
Clark University
Worcester, MA 01610
E-Mail: achou@clarku.edu
Web: <http://www.cs.clarku.edu/~achou>
Tel: (508) 793-7692

Areas of Interest Complexity Theory, Bioinformatics, Differential Geometry.

Education

1977 - 1982, State University of New York at Stony Brook, Ph.D. in Mathematics.

Thesis: “The Dirac operator on spaces with conical singularities and positive scalar curvature”.

1972 - 1976, Tunghai University, Taiwan, B.Sc. with major in mathematics.

Employment

2008 - present, Professor, Department of Mathematics and Computer Science, Clark University, Worcester, MA.

1989 - 2008, Associate Professor, Department of Mathematics and Computer Science, Clark University, Worcester, MA.

1982 - 1989, Assistant Professor, Department of Mathematics and Computer Science, Clark University, Worcester, MA.

Visiting Positions

Fall 2005, Visiting Professor, Department of Mathematics and Department of Computer Science and Engineering, Tunghai University, Taichung, Taiwan.

Fall 2004, Visiting Associate Professor, Department of Computer Science, SUNY - Stony Brook, Stony Brook, NY.

June - August, 1997, Visiting Associate Professor, Department of Computer Science, Peking Uni-

versity, Beijing, China.

1990 - 1991, Visiting Associate Professor, Department of Computer Science, SUNY - Stony Brook, Stony Brook, NY.

1984 - 1985, Research Associate, Department of Computer Science, Columbia University, New York, NY.

1983 - 1984, Member, School of Mathematics, Institute for Advanced Study, Princeton, NJ.

Teaching Experience

Regular courses:

COMPUTER SCIENCE: Introduction to Bioinformatics, First-Year Seminar in Bioinformatics, Computing in Our World, Introduction to Computing, Data Structures, Algorithms, Automata Theory, Discrete Mathematics, Computer Organization and Assembly Language, Compiler Design, Computer Networks, Computer Architecture, Operating Systems, Database Systems, Software Design, Theory of Computation.

MATHEMATICS: Pre-calculus, Calculus (I, II, III), Linear Algebra, Multivariate Calculus, Probability and Statistics, Complex Analysis, Differential Equations, Introduction to Modern Analysis, Real Analysis, Numerical Analysis.

Directed research:

Differential equations, Differential Geometry, Partial Differential Equations, Graph Algorithms, Neural Networks, Database Design, Number Theory, Algebraic Topology, Topics in the Theory of Computation, Computer Networks, Network Security, Computer Graphics/Visualization, Algorithms in Bioinformatics, Computational Finance.

Departmental and University Service

University service: University Academic Board, Faculty Review Committee, College Board, Academic Space Committee, Affirmative Action Committee, Admissions and Financial Aid committee, Admission Open House, Science Open House, Majors Fair, Traina Scholarship Day.

Departmental Service: Search Committee, Personnel Committee, Curriculum Development Committee, first-year student adviser, major adviser, Director of Bioinformatics Program.

Awards and Grants

2005 Exceptional Merit Award, Clark University.

1988 Faculty Development Grant, Clark University: "Complexity Theory of Numerical Computation".

1983 - 1986 National Science Foundation Grant (Division of Mathematical Sciences): “Index Theorem of the Dirac operator on Pseudo-manifolds”.

Recent Presentations

“A dynamic programming approach to the study of sequence variations”, International Conference on Bioinformatics and Computational Biology (BIOCOMP’08), July 14-17, 2008.

“Computational complexity of plane sets”, Boston Area Complexity Seminar, Boston, MA, April, 2007.

“The cross-fertilization of life sciences and mathematics/computer science”, College of Sciences, Tunghai University, Taichung, Taiwan, January, 2006.

Keynote address: “From Marcel Duchamp to Margaret Dayhoff and beyond: the future of interdisciplinary studies”, in the International Conference on the Future of College Education: Academic Summit for the 50th year Celebration of Tunghai University, Taichung, Taiwan, November 3 - 4, 2005.

“On the complexity of finding circumscribed rectangles for a two-dimensional Domain”, Second International Conference on Computability and Complexity in Analysis, August 25-29, 2005, Kyoto, Japan.

“Computational complexity of conformal mapping”, Department of Computer Science, SUNY-Stony Brook, Stony Brook, NY, November, 2004.

“Dynamic programming approach to sequence analysis”, Workshop in Bioinformatics at UMass-Medical School, November 2002

“Algorithms for the analysis of sequence variations”, Department of Biochemistry, UMASS-Medical School, Worcester, MA, February, 2001.

“Complexity of numerical computations on the complex plane”, Institute of Computational Mathematics, Chinese Academy of Sciences, Beijing, China, July, 1998.

Other Professional Activities

Reviewer for the Area of Excellence (AOE) Grants (Center grants with a budget of US\$100 millions) administered by the University Grants Committee (UGC) of Hong Kong Government, the Fourth Round, March 2007.

Reviewer for SIAM Journal of Computing, Journal of Complexity, Theoretical Computer Science, CCA (Conference on Computability and Complexity in Analysis) 2003 - 2007.

Program committee member, Third International Conference on Computability and Complexity in Analysis, November 1 - 5, 2006, Gainesville, Florida, USA.

Consultant to the Nucleic Acid Vaccines Laboratory, Department of Medicine, UMASS-Medical School, Worcester, MA, 2002 - 2008.

Recent Publications in Refereed Journals

Huang, Z., Chou, A., Mboudjeka, I., , Shen, S., Tanguay, J., Lu, S., and Wang, S., Levels of N-linked glycosylation on the V1 loop of HIV-1 Env Proteins and their relationship to the immunogenicity of HIV Env from primary viral isolates, to appear in the journal *Current HIV Research* (accepted for publication, April 4, 2008).

Yu, F., Chou, A., and Ko, K., On the complexity of finding the circumscribed rectangles and squares for a two-dimensional domain, *Journal of Complexity* 22 (2006), pp. 803 – 817.

Chou, A. and Ko, K., The computational complexity of the distance functions of two-dimensional domains, *Theoretical Computer Science*, 337 (2005), 360 – 369.

Chou, A. and Ko, K., On the Complexity of finding paths in a two-dimensional domain II: piecewise straight-line paths, Volume 120, Pages 45-57, *Electronic Notes in Theoretical Computer Science* 120 (Elsevier, Amsterdam, 2005), 45 – 57.

Chou, A. and Ko, K., On the complexity of finding paths in a two-dimensional domain I: shortest paths, *Math.Logic Quarterly* 50 (2004), 551 – 572.

Chou, A. and Ko, K., Computational complexity of two-dimensional regions, *SIAM Journal of Computing* 24 (1995), 923 – 947.

Recent Publications in Refereed Conference Proceedings

Chou, A. and Lu, S., A dynamic programming approach to the study of sequence variations, accepted as a research paper for publication in the *Proceeding of the International Conference on Bioinformatics and Computational Biology (BIOCOMP'08)*, July 14-17, 2008.

Yu, F., Chou, A. and Ko, K., On the complexity of bounding a two-dimensional domain. *Proceedings, Second International Conference on Computability and Complexity in Analysis 2005*, Kyoto, Japan, August 25-29, 2005.

Chou, A. and Ko, K. The Complexity of finding piecewise-linear path in a two-dimensional region, *Proceedings of the Sixth Conference on Computability and Complexity in Analysis*, Lutherstadt Wittenberg, Germany, August 16-20, 2004.

Chou, A. and Ko, K., On the complexity of path finding in a plane domain, *Proceedings of the 5th Conference on Computability and Complexity in Analysis*, Cincinnati, OH, USA, August 28-30, 2003.

Some complexity issues in Complex Analysis, *Proceedings of the First International Conference on Computability and Complexity in Analysis*, Hagen, Germany, August 11-15, 1996.

Chou, A. and Ko, K., Some complexity issues on the simply connected regions of the two-dimensional plane, Proceeding of the Twenty-Fifth Annual ACM Symposium on Theory of Computing (STOC), San Diego, CA, USA, June 9-11, 1993.