

# CURRICULUM VITAE

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## Personal

### Education

#### Diploma, Mathematics, 1990

Budapest Eötvös Loránd University, Budapest, Hungary.

#### M.S., Computer Science, 1994

Rutgers University, New Brunswick, NJ.

#### Ph.D., Computer Science, 1994

Rutgers University, New Brunswick, NJ.

### Positions

#### Held

1994-96	Lecturer, Mathematics, University of Pennsylvania
1996	2 months, Visiting Professor, University of California, Berkeley, Mathematical Sciences Research Institute
1997	1 month, Visiting Professor, Arizona State University
1998	1 month, Visiting Professor, University of Marseille, France
1999	1 month, Visiting Professor, University of Marseille, France
1996-01	Assistant Professor, Computer Science, Worcester Polytechnic Institute
2001-	Affiliated Associate Professor, Computer Science, Worcester Polytechnic Institute

### Work

#### Experience

May 1993 – Aug 1993. Vision Research Laboratory, Rutgers University. Helped to design and participated in vision research experiments.

March 2004 – present. Senior research fellow, Computer and Automation Research Institute of the Hungarian Academy of Sciences.

## Teaching

### Teaching

#### Experience

Sept 1988 – May 1990. Instructor, Department of Mathematics, Budapest Eotvos Lorand University, Hungary. Course taught: Number Theory.

Jan 1989 – May 1989. Assistant, Technical University, Budapest, Hungary. Assisted in teaching Number Theory at the Budapest Semester, an organization for American students studying in Hungary.

June 1993 – May 1994. Instructor, Department of Computer Science, Rutgers University. Courses taught: Introduction to Discrete Structures I, II.

Sept 1993 – Dec 1993. Assistant, Department of Computer Science, Rutgers University. Assisted in teaching graduate course Parallel Algorithms and Complexity.

September 1994 – May 1996. Instructor, Department of Mathematics, University of Pennsylvania. Good Teaching Award. Courses taught: Ideas in Mathematics, Calculus III(using Maple), Advanced Calculus I, II, Combinatorial Analysis and Graph Theory (graduate).

September 1996 – May 2001. Assistant Professor,

September 2001 – present. Affiliated Associate Professor, Computer Science Department, Worcester Polytechnic Institute.

**Teaching Honor**

Received the Good Teaching Award at the Mathematics Department of the University of Pennsylvania, 1995, given to the best professors at the department.

**Teaching Innovations at WPI**

Developed and taught course CS 3133 for the first time at WPI.

**Courses Taught at WPI**

Term	Course taught	Evaluations (A+SA)
A96	CS 3133	94 %
S97	CS 503	93 %
D97	CS 3133	95 %
A97	CS 3133	96 %
S98	CS 503	82 %
C98	CS 3133	95 %
A98	CS 2022/MA 2201	70 %
S99	CS 503	95 %
C99	CS 3133	90 %
A99	CS 3133	97 %
S00	CS 503	95 %
C00	CS 3133	90 %
A00	CS 2022/MA 2201	92 %
S01	CS 503	97 %
C01	CS 3133	92 %
C02	CS 3133	93 %
C03	CS 3133	93 %
C04	CS 3133	4.6 (Idea)
A04	CS 2022	4.8
	<b>average</b>	93 %

**MQP's advised**

1997-98, Craig Howitt: "Molecular Computation", this project was a joint project with the Mathematics and the Biology departments, co-advisors: Stanley Selkow, Brigitte Servatius, Joseph Bagshaw, Elizabeth Ryder

1997-98, Josh Taylor: "Genetic Algorithms", co-advisors: Stanley Selkow, Marton Balazs

1997-98, Brian Morin: "Computational Graph Theory", co-advisor: Stanley Selkow

1998-99, Kim Sargeant: "DNA Computing", co-advisors: Stanley Selkow, George Heineman

1999-00, Ben Clark, Jason Wilson: "Bounds on Ramsey numbers", co-advisors: Stanley Selkow, George Heineman

1999-00, Peter Recore: "Games on graphs", co-advisor: Stanley Selkow

1999-00, Louis Barrega: "Blackjack strategies", co-advisor: Stanley Selkow

2004-05, John Hajeski: "Winkler percolations", co-advisor: Brigitte Servatius

2005, Amanda Jamin, Domenic Giancola: "Grid portal application visualization" (Budapest MQP Project Center)

2005, David Norcott, Kai Rasmussen: "Development of algorithms on the grid" (Budapest MQP Project Center)

2006, Dani Martin, Ramon Harrington, Carsten Winsnes: "Grid portal testing" (Budapest MQP Project Center)

2007, Felix Geller, Candice Richardson, Petre Rontea: "Building intelligent tutoring systems" (Budapest MQP Project Center)

2007, Montana Foertsch, Michael Rawdon, Richard Skowyra: "Grid portal applications" (Budapest MQP Project Center)

## Independent Studies

- 1998, Richard Resnick: "Computational Biology" (grad)  
1999, Dan Bailey: "Advanced Topics in the Foundations of Computer Science" (grad)  
1999, Leonard Frank: "Foundations of Computer Science" (undergrad)  
2000, Jorge Guajardo: "Applications of Lattices in Cryptography" (grad, ECE)  
2000, Narayan Gangadhar: "Introduction to Graph Theory" (graduate)

## Scholarship

### Refereed Journal Publications

- [1] "On a problem of P. Erdős." *Acta Mathematica Hungarica*, 60 (1-2), 1992, pp. 271-282.
- [2] "Cycles in bipartite graphs and an application in Number Theory." *Journal of Graph Theory*, 19 (3), 1995, pp. 323-331.
- [3] "On sums with small prime factors." *Acta Mathematica Hungarica*, 67 (4), 1995, pp. 333-345.
- [4] "Proof of a packing conjecture of Bollobás." *Probability, Combinatorics and Computing*, 4, 1995, pp. 241-255 (with János Komlós, Endre Szemerédi).
- [5] "On the square of a Hamiltonian cycle in dense graphs." *Random Structures and Algorithms*, 9, 1996, pp. 193-211 (with János Komlós, Endre Szemerédi).
- [6] "On cycles in the coprime graph of integers." *Electronic Journal of Combinatorics*, 4 (2), 1997, #R8 (with Paul Erdős).
- [7] "Blow-up Lemma." *Combinatorica*, 17 (1), 1997, pp. 109-123 (with János Komlós, Endre Szemerédi).
- [8] "An algorithmic version of the Blow-up Lemma." *Random Structures and Algorithms*, 12, 1998, pp. 297-312 (with János Komlós, Endre Szemerédi).
- [9] "On the Pósa-Seymour conjecture." *Journal of Graph Theory*, 29, 1998, pp. 167-176 (with János Komlós, Endre Szemerédi).
- [10] "Proof of the Seymour conjecture for large graphs." *Annals of Combinatorics*, 2, 1998, pp. 43-60 (with János Komlós, Endre Szemerédi).
- [11] "Counting irregular multigraphs." *Discrete Mathematics*, 195, 1999, pp. 235-237 (with Aron Atkins and Stanley Selkow).
- [12] "Complete tripartite subgraphs in the coprime graph of integers." *Discrete Mathematics*, 202, 1999, pp. 227-238.
- [13] "On k-ordered Hamiltonian graphs." *Journal of Graph Theory* 32, 1999, pp. 17-25 (with Hal Kierstead, Stanley Selkow).
- [14] "Vertex partitions by connected monochromatic k-regular graphs." *Journal of Combinatorial Theory Series B*, 78, 2000, pp. 115-122 (with Stanley Selkow).
- [15] "On edge colorings with at least q colors in every subset of p vertices." *Electronic Journal of Combinatorics* 8, 2001, #R9 (with Stanley Selkow).
- [16] "Spanning trees in dense graphs." *Probability, Combinatorics and Computing* 10, 2001, pp. 397-416 (with János Komlós, Endre Szemerédi).
- [17] "Proof of the Alon-Yuster conjecture." *Discrete Mathematics* 235, 2001, pp. 255-269 (with János Komlós, Endre Szemerédi).
- [18] "On the number of Hamiltonian cycles in Dirac graphs." *Discrete Mathematics* 265, 2003, pp. 237-250 (with Stanley Selkow, Endre Szemerédi).
- [19] "On bipartite generalized Ramsey theory." *Ars Combinatoria* 68, 2003, pp. 57-64 (with Stanley Selkow).

**Journal  
publications  
continued**

- [20] “An application of the Regularity Lemma in generalized Ramsey theory.” *Journal of Graph Theory* 44, 2003, pp. 39-49 (with Stanley Selkow).
- [21] “An extension of the Ruzsa-Szemerédi Theorem.” *Combinatorica* 25 (1), 2005, pp. 77-84 (with Stanley Selkow).
- [22] “On a Turán-type hypergraph problem of Brown, Erdős and T. Sós.” *Discrete Mathematics* 297, 2005, pp. 190-195 (with Stanley Selkow).
- [23] “On partial block designs with large blocks.” *Discrete Mathematics* 305, 2005, pp. 264-275 (with András Sárközy).
- [24] “On an anti-Ramsey problem of Burr, Erdős, Graham and T. Sós.” *Journal of Graph Theory* 52, 2006, pp. 147-156 (with Stanley Selkow).
- [25] “An improved bound for the monochromatic cycle partition number.” *Journal of Combinatorial Theory, Ser. B* 97, 2006, pp. (with András Gyárfás, Miklós Ruszinkó and Endre Szemerédi).
- [26] “One-sided coverings of colored complete bipartite graphs.” in *Topics in Discrete Mathematics* (dedicated to J. Nešetřil on his 60th birthday), *Algorithms and Combinatorics* 26 (M. Klazar et al eds.), Springer, Berlin, 2006, pp. 133-154 (with András Gyárfás, Miklós Ruszinkó and Endre Szemerédi).
- [27] “Three color Ramsey numbers for paths.” *Combinatorica*, 27 (1), 2007, pp. 35-69 (with András Gyárfás, Miklós Ruszinkó and Endre Szemerédi).
- [28] “Tripartite Ramsey numbers for paths.” *Journal of Graph Theory*, 55, 2007, pp. 164-174 (with András Gyárfás, Miklós Ruszinkó and Endre Szemerédi).
- [29] “Monochromatic Hamiltonian Berge-cycles in colored complete uniform hypergraphs.” Accepted for publication in the *Journal of Combinatorial Theory, Ser. B* (with András Gyárfás, Jenő Lehel and Richard Schelp).
- [30] “On 2-factors with k components.” Accepted for publication in *Discrete Mathematics*.
- [31] “Size of monochromatic components in local edge colorings.” Accepted for publication in *Discrete Mathematics* (with András Gyárfás).
- [32] “Size of monochromatic double stars in edge colorings.” Accepted for publication in *Graphs and Combinatorics* (with András Gyárfás).

**Scholarship  
In Progress**

- [33] “Inequalities for the First-Fit chromatic number.” Submitted for publication to the *Journal of Graph Theory* (with Zoltán Füredi, András Gyárfás and Stanley Selkow).
- [34] “A fast parallel algorithm for finding Hamiltonian cycles in dense graphs.” Submitted for publication to *Discrete Mathematics*.
- [35] “Distributing vertices along a Hamiltonian cycle in Dirac graphs.” Submitted for publication to *Discrete Mathematics* (with Stanley Selkow).
- [36] “The 3-color Ramsey number of a 3-uniform Berge-cycle.” Submitted for publication to *Combinatorics, Probability and Computing* (with András Gyárfás).
- [37] “The Ramsey number of diamond-matchings and loose cycles in hypergraphs.” Submitted for publication to the *Journal of Combinatorial Theory, Ser. A* (with András Gyárfás and Endre Szemerédi).
- [38] “Monochromatic Hamiltonian t-tight Berge-cycles in hypergraphs.” Submitted for publication to the *Journal of Graph Theory* (with Paul Dorbec and Sylvain Gravier).
- [39] “Monochromatic matchings in the shadow graph of almost complete hypergraphs.” Submitted for publication to *Annals of Combinatorics* (with András Gyárfás and Endre Szemerédi).
- [40] “How to avoid using the Regularity Lemma; Pósa’s Conjecture revisited.” Manuscript (with Ian Levitt and Endre Szemerédi).

- Grants Funded** 1999, NSA (National Security Agency) Young Investigator's Grant, \$12,938 from 12/17/99 to 12/16/00 titled "The Regularity Lemma and the Blow-up Lemma".
- 2005, NSF (National Science Foundation) grant, \$62,160 from 07/01/05 to 06/30/08 titled "Extremal problems in graph theory".
- 2007, Bolyai Grant given by the Hungarian Academy of Sciences, \$21,500 from 09/01/07 to 08/31/10.
- 2007, OTKA (Hungarian National Science Foundation) grant, \$47,750 from 01/01/07 to 12/31/11 titled "Extremal problems in discrete structures".
- Grants Not Funded** 1998, submitted an IGERT proposal to NSF (National Science Foundation), \$ 1,727,784 for five years to support graduate training in discrete mathematics at WPI (a joint proposal with the Mathematics and Electrical and Computer Engineering departments with C. Paar, C. Ruiz, J. Rulnick, S. Selkow, B. Servatius and H. Servatius).
- 2006, submitted a PIRE proposal to NSF (National Science Foundation) to develop an international Partnership in Research and Education (a joint proposal with N. Heffernan and S. Selkow, CS Dpt., WPI, László Lovász (President of the International Mathematical Union), András Ambrus and Katalin Fried, ELTE University, Budapest, Hungary and Ryan Baker, University of Nottingham, UK).
- Invited Talks** 1994, University of Pennsylvania, 1 hour invited talk
- 1995, University of Delaware, 1 hour invited talk
- 1996, Carnegie Mellon University, 1 hour invited talk
- 1996, Georgia Institute of Technology, 1 hour invited talk
- 1996, Naval Postgraduate School, Monterey, CA, 1 hour invited talk
- 1997, MIT, Cambridge, MA, 1 hour invited talk
- 1997, Combinatorics of New England workshop, 1 hour invited talk
- 1997, Invited to give Lecture Series on the Blow-up Lemma, Arizona State University
- 1998, SIAM'98 meeting, invited organizer and lecturer, Toronto, Canada
- 1998, University of Marseille, France, 1 hour invited talk
- 1999, University of Marseille, France, 1 hour invited talk
- 2005, Discrete Math Day at WPI, invited talk
- 2005, Rényi Institute, Hungary, 1 hour invited talk
- 2006, University of Memphis, USA, 1 hour invited talk
- 2006, Extremal Combinatorics at the University of Illinois, USA, invited talk
- 2006, University of Grenoble, France, 1 week invited visit and 1 hour talk
- 2007, Eastern Kentucky University, USA, 1 hour invited talk
- 2007, Technical University of Munich, Germany, invited visit and 1 hour talk
- Other Presentations** 1989, Charles University, Prague, Czech Republic, International Student Conference
- 1989, Budapest Eötvös Loránd University, Budapest, Hungary, National Scientific Student Conference
- 1995, Joint Meeting of the American Mathematical Society and the Israel Mathematical Union, Jerusalem, Israel
- 1996, International Colloquium on Combinatorics and Graph Theory (satellite conference of the 2nd European Congress of Mathematics), Balatonlelle, Hungary
- 1997, International Colloquium on Combinatorics and Graph Theory, Balatonlelle, Hungary
- 1998, Princeton University, DIMACS, lecturer and workshop participant
- Conference Organization** Invited to organize a minisymposium in extremal graph theory on the Blow-up Lemma at the SIAM'98 meeting in Toronto, Canada.

**Graduate Research** 1998, Member of Master's Thesis Committee, Jorge Guajardo, ECE department: "Efficient Algorithms for Elliptic Curve Cryptosystems".  
2000, Member of Master's Thesis Committee, Dan Bailey: "Computation in Optimal Extension Fields".  
2001, Co-advisor (with Stanley Selkow) of Master's Thesis, Nastaran Baradaran: "The Erdős-Gyárfás Variant of Ramsey's Problem".

**Other Research** Created and coordinated the Graph Theory Research Group (GTRG) at WPI.

## Service

**Memberships** American Mathematical Society, Association for Computing Machinery

**Referee Services** Refereed for Journal of Combinatorial Theory, Journal of Graph Theory, Combinatorica, Electronic Journal of Combinatorics, Random Structures and Algorithms, Combinatorics, Probability and Computing, National Security Agency and the National Science Foundation. Invited external reviewer for a tenure case at Arizona State University.

**WPI CS Dpt. Committees** Undergraduate Committee, 1996-98  
Program Review Committee, 1996-98  
Library Coordinator, 1998-2000

**Contributions to WPI** Guest speaker at the Induction Ceremony of Pi Mu Epsilon, National Honor Society, WPI chapter.  
Built contacts with other departments, such as Mathematics, Biology, Electrical and Computer Engineering including joint MQP projects, Master's theses and a research group.  
Built a cooperation program with the Computer and Automation Research Institute in Hungary and founded the Budapest MQP Project Center there, the first (and only) WPI Project Center in Eastern Europe.

**Honors** Best Paper Prize at the National Scientific Student Conference, Hungary, 1989.  
Hungarian Republic Scholarship, for outstanding students, Hungary, 1988-90.  
Diploma with distinction, Budapest Eötvös Loránd University, Hungary, 1990.  
Rényi Kató Prize, awarded by the Bolyai Janos Mathematical Society for outstanding young researchers, Hungary, 1990.  
Graduate School Excellence Fellowship, Rutgers University, 1991-92, for the best graduate students.  
Good Teaching Award, University of Pennsylvania, 1995.  
Obtained first permanent residency (green card) as a distinguished scientist, in 1996, then US citizenship in 2001.