

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

Advisor: Endre Szemerédi (Abel Prize winner)

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 – February 2012. Senior research fellow, Computer and Automation Research Institute of the Hungarian Academy of Sciences.

March 2012 – present. Senior research fellow, Alfréd Rényi 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).

Teaching Continued	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.
Advising at WPI	1 PhD Thesis: Fei Song, graduated in 2013, currently at Umea University, Sweden, 4 Master's Theses, Over 40 MQP Projects, Over 10 Independent studies.

Scholarship

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

- [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).
- [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. 855-873 (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] “Corrigendum: Three color Ramsey numbers for paths” (*Combinatorica*, 27 (1), 2007, pp. 35-69). *Combinatorica*, 28 (4), 2008, pp. 499-502 (with András Gyárfás, Miklós Ruszinkó and Endre Szemerédi).
- [30] “Monochromatic Hamiltonian Berge-cycles in colored complete uniform hypergraphs.” *Journal of Combinatorial Theory, Ser. B*, 98, 2008, pp. 342-358 (with András Gyárfás, Jenő Lehel and Richard Schelp).
- [31] “On 2-factors with k components.” *Discrete Mathematics*, 308, 2008, pp. 1962-1972.
- [32] “Size of monochromatic components in local edge colorings.” *Discrete Mathematics*, 308, 2008, pp. 2620-2622 (with András Gyárfás).
- [33] “Inequalities for the First-Fit chromatic number.” *Journal of Graph Theory*, 59, 2008, pp. 75-88 (with Zoltán Füredi, András Gyárfás and Stanley Selkow).
- [34] “Monochromatic Hamiltonian t-tight Berge-cycles in hypergraphs.” *Journal of Graph Theory*, 59, 2008, pp. 34-44 (with Paul Dorbec and Sylvain Gravier).
- [35] “Distributing vertices along a Hamiltonian cycle in Dirac graphs.” *Discrete Mathematics*, 308, 2008, pp. 5757-5770 (with Stanley Selkow).
- [36] “The Ramsey number of diamond-matchings and loose cycles in hypergraphs.” *Electronic Journal of Combinatorics*, 15 (1), 2008, #R126 (with András Gyárfás and Endre Szemerédi).
- [37] “Size of monochromatic double stars in edge colorings.” *Graphs and Combinatorics*, 24, 2008, pp. 531-536 (with András Gyárfás).
- [38] “A fast parallel algorithm for finding Hamiltonian cycles in dense graphs.” *Discrete Mathematics*, 309, 2009, pp. 1611-1622.
- [39] “Multipartite Ramsey numbers for odd cycles.” *Journal of Graph Theory*, 61, 2009, pp. 12-21 (with András Gyárfás and Richard Schelp).
- [40] “The stability of the path-path Ramsey number.” *Discrete Mathematics*, 309, 2009, pp. 4590-4595 (with András Gyárfás and Endre Szemerédi).

**Publications
Continued**

- [41] “How to avoid using the Regularity Lemma; Pósa’s Conjecture revisited.” *Discrete Mathematics*, 310, 2010, pp. 630-641 (with Ian Levitt and Endre Szemerédi).
- [42] “Gallai colorings of non-complete graphs.” *Discrete Mathematics*, 310, 2010, pp. 977-980 (with András Gyárfás).
- [43] “Monochromatic Hamiltonian 3-tight Berge cycles in 2-colored 4-uniform hypergraphs.” *Journal of Graph Theory* 63, 2010, pp. 288-299 (with András Gyárfás and Endre Szemerédi).
- [44] “Long monochromatic Berge cycles in colored 4-uniform hypergraphs.” *Graphs and Combinatorics* 26, 2010, pp. 71-76 (with András Gyárfás and Endre Szemerédi).
- [45] “Ramsey-type results for Gallai-colorings.” *Journal of Graph Theory* 64, 2010, pp. 233-243 (with András Gyárfás, András Sebő and Stanley Selkow).
- [46] “Monochromatic matchings in the shadow graph of almost complete hypergraphs.” *Annals of Combinatorics* 14, 2010, pp. 245-249 (with András Gyárfás and Endre Szemerédi).
- [47] “The 3-color Ramsey number of a 3-uniform Berge-cycle.” *Combinatorics, Probability and Computing* 20, 2011, pp. 53-71 (with András Gyárfás).
- [48] “Monochromatic cycle partitions of edge-colored graphs.” *Journal of Graph Theory* 66, 2011, pp. 57-64.
- [49] “Partitioning 3-colored complete graphs into three monochromatic cycles.” *Electronic Journal of Combinatorics* 18, 2011, #P53 (with András Gyárfás, Miklós Ruszinkó and Endre Szemerédi).
- [50] “Long rainbow cycles in proper edge-colorings of complete graphs.” *Australasian Journal of Combinatorics* 50, 2011, pp. 45-53 (with András Gyárfás, Miklós Ruszinkó and Richard Schelp).
- [51] “Spectral Clustering in Educational Data Mining.” *Educational Data Mining*, 2011, pp. 129-138 (with Shubhendu Trivedi, Zach Pardos and Neil Heffernan).
- [52] “Vertex partitions of non-complete graphs by connected monochromatic k-regular graphs.” *Discrete Mathematics* 311, 2011, pp. 279-284 (with Stanley Selkow and Fei Song).
- [53] “Coverings by monochromatic pieces - problems for the Emlektabla workshop.” Proceedings of the 3rd Emlektabla Workshop, Janos Bolyai Mathematical Society, 2011, pp. 1-9.
- [54] “Star versus two stripes Ramsey numbers and a conjecture of Schelp.” *Combinatorics, Probability and Computing* 21, 2012, pp. 179-186. (with András Gyárfás).
- [55] “Clustered knowledge tracing.” Proceedings of the 11th International Conference on Intelligent Tutoring Systems, *LNCS* 7315, pp. 407-412, 2012, Springer-Verlag Berlin Heidelberg (with Zach Pardos, Shubhendu Trivedi and Neil Heffernan).
- [56] “Co-Clustering by bipartite spectral graph partitioning for out-of-tutor prediction.” Proceedings of the 5th International Conference on Educational Data Mining, 2012, pp. 33-40 (with Zach Pardos, Shubhendu Trivedi and Neil Heffernan).
- [57] “An improved bound for vertex partitions by connected monochromatic k-regular graphs.” *Journal of Graph Theory* 73, 2013, pp. 127-145 (with Stanley Selkow and Fei Song).
- [58] “Monochromatic path and cycle partitions in hypergraphs.” *Electronic Journal of Combinatorics* 20, 2013, P18 (with András Gyárfás).
- [59] “Applying clustering to the problem of predicting retention within an ITS: Comparing Regularity Clustering with Traditional Methods.” Proceedings of the 26th International *FLAIRS* Conference, 2013, pp. 527-532 (with Fei Song, Shubhendu Trivedi, Yutao Wang and Neil Heffernan).
- [60] “Ramsey numbers for bipartite graphs with small bandwidth.” The Seventh European Conference on Combinatorics, Graph Theory and Applications *CRM Series* Volume 16, 2013, pp 165-170 (with G.O. Mota, M. Schacht, A. Taraz).
- [61] “Rainbow matchings and partial transversals of Latin squares.” *Discrete Mathematics* 327, 2014, pp. 96-102 (with András Gyárfás).

Scholarship In Progress	<p>[62] “Partitioning edge-2-colored graphs by monochromatic paths and cycles.” Accepted for publication in <i>Combinatorica</i> (with József Balog, János Barát, Dániel Gerbner and András Gyárfás).</p> <p>[63] “Coverings by few monochromatic pieces - a transition between two Ramsey problems.” Accepted for publication in <i>Graphs and Combinatorics</i> (with András Gyárfás and Stanley Selkow).</p> <p>[64] “A Practical regularity partitioning algorithm and its applications in clustering.” Submitted for publication (with Fei Song, Endre Szemerédi and Shubendu Trivedi).</p> <p>[65] “Ramsey number of a connected triangle matching.” Submitted for publication to the <i>Journal of Graph Theory</i> (with András Gyárfás).</p> <p>[66] “Improved monochromatic loose cycle partitions in hypergraphs.” Submitted for publication to <i>Discrete Mathematics</i>.</p> <p>[67] “Monochromatic bounded degree subgraph partitions.” Submitted for publication to <i>Combinatorica</i> (with Andrey Grinshpun).</p> <p>[68] “Monochromatic loose-cycle partitions in hypergraphs.” Submitted for publication to the <i>Electronic Journal of Combinatorics</i> (with András Gyárfás).</p>
Citations	Over 600 citations for the above papers.
Grants Funded	<p>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”.</p> <p>2005, NSF (National Science Foundation) grant, \$62,160 from 07/01/05 to 06/30/08 titled “Extremal problems in graph theory”.</p> <p>2007, Bolyai Grant given by the Hungarian Academy of Sciences, \$21,500 from 09/01/07 to 08/31/10.</p> <p>2007, OTKA (Hungarian National Science Foundation) grant, \$47,750 from 01/01/07 to 12/31/11 titled “Extremal problems in discrete structures”.</p> <p>2009, NSA Conference Grant, \$15,000.</p> <p>2009, Clay Institute, Conference Grant, \$15,000.</p> <p>2010, NSF grant, \$133,086 from 07/01/10 to 06/30/13 titled “Graph partitions and their applications”.</p> <p>2012, OTKA (Hungarian National Science Foundation) grant, \$100,000 from 09/01/12 to 08/31/16 titled “The structure of large discrete structures”.</p> <p>2013, NSF Conference Grant, \$15,000.</p>
Major Grants Not Funded	<p>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).</p> <p>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).</p>

Selected Invited Talks	<p>1994, University of Pennsylvania, 1 hour invited talk</p> <p>1995, University of Delaware, 1 hour invited talk</p> <p>1996, Carnegie Mellon University, 1 hour invited talk</p> <p>1996, Georgia Institute of Technology, 1 hour invited talk</p> <p>1996, Naval Postgraduate School, Monterey, CA, 1 hour invited talk</p> <p>1997, MIT, Cambridge, MA, 1 hour invited talk</p> <p>1997, Combinatorics of New England workshop, 1 hour invited talk</p> <p>1997, Invited to give Lecture Series on the Blow-up Lemma, Arizona State University</p> <p>1998, SIAM'98 meeting, invited organizer and lecturer, Toronto, Canada</p> <p>1998, University of Marseille, France, 1 hour invited talk</p> <p>2000, University of Marseille, France, 1 hour invited talk</p> <p>2004, Discrete Math Day at WPI, invited talk</p> <p>2005, Rényi Institute, Hungary, 1 hour invited talk</p> <p>2006, University of Memphis, USA, 1 hour invited talk</p> <p>2006, Extremal Combinatorics at the University of Illinois, USA, invited talk</p> <p>2006, University of Grenoble, France, 1 week invited visit and 1 hour talk</p> <p>2007, Eastern Kentucky University, USA, 1 hour invited talk</p> <p>2007, Technical University of Munich, Germany, invited visit and 1 hour talk</p> <p>2008, Joint AMS-SBM Meeting, Rio de Janeiro, Brazil, invited talk</p> <p>2008, Fete of Combinatorics and Computer Science, Keszthely, Hungary</p> <p>2009, McGill University, Montreal, Canada, 1 hour invited talk</p> <p>2010, Charles University, Prague, Szemerédi Honorary Degree, invited talk</p> <p>2011, University of Illinois, USA, 1 hour invited talk</p> <p>2013, Dartmouth University, Hanover, NH, 1 hour invited talk</p> <p>2014, MIT, Cambridge, MA, 1 hour invited talk</p> <p>2014, Mittag-Leffler Institute, Stockholm, Sweden, 2 week invited visit and 1 hour talk</p>
Some Other Presentations	<p>1989, Charles University, Prague, Czech Republic, International Student Conference</p> <p>1989, Budapest Eötvös Loránd University, Budapest, Hungary, National Scientific Student Conference</p> <p>1995, Joint Meeting of the American Mathematical Society and the Israel Mathematical Union, Jerusalem, Israel</p> <p>1996, International Colloquium on Combinatorics and Graph Theory (satellite conference of the 2nd European Congress of Mathematics), Balatonlelle, Hungary</p> <p>1997, International Colloquium on Combinatorics and Graph Theory, Balatonlelle, Hungary</p> <p>1998, Princeton University, DIMACS, lecturer and workshop participant</p>
Conference Organization	<p>Invited to organize a minisymposium in extremal graph theory on the Blow-up Lemma at the SIAM'98 meeting in Toronto, Canada.</p> <p>2011, Organized the 70th birthday conference for Endre Szemerédi with the participation of several Fields, Wolf and Nevanlinna Prize winners.</p> <p>2013, Organized the Erdős Centennial Conference with the participation of several Fields, Wolf and Nevanlinna Prize winners.</p>
Other Research	<p>Created and coordinated the Graph Theory Research Group (GTRG) at WPI.</p>

Service

Memberships	<p>Editorial Board, European Journal of Combinatorics</p> <p>American Mathematical Society, Association for Computing Machinery</p>
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- Referee Services** Refereed for Discrete Mathematics, 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.
Doctor of the Hungarian Academy of Sciences, 2009.

Hobbies

- Tennis** Over 35 tennis champion of Hungary.