

George V. Popescu

Research Assistant Professor

Institute for Genomics, Biocomputing and Biotechnology, Mississippi State University,
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Education

- 2009 – 2011 Postdoctoral training in **applied mathematics and statistics** at University “Politehnica” Bucharest (Constantin Udriste) and University of Bucharest (Monica Dumitrescu).
- 2008 **DIMACS postdoctoral** visiting position with Professor Joel Lebowitz.
- 2004 – 2006 Postdoctoral Training in **Genomics, Bioinformatics and Systems biology**, Center for Excellence in Genomic Sciences, Yale University.
- 1996 - 2001 **Ph.D. in Electrical and Computer Engineering**, Rutgers – The State University of New Jersey
- 1988-1993 **B.S. /M.S. in Electrical Engineering**, University “Politehnica” Bucharest, Romania; thesis research conducted at INP Grenoble, France.

Professional Appointments

- 2016-present **Assistant Research Professor**, IGBB, Mississippi State University
- 2015-2016 **Senior lecturer**, Computer Science Department, Central Washington University
- 2011-2015 **Senior scientist**, National Institute for Lasers, Plasma and Radiation Physics, Bucharest (NILPRP), Romania
- 2011 - 2015 **Senior scientist** (2012-2014), Visiting scientist (2015), Adjunct (2011-2012), Boyce Thompson Institute/Cornell University
- 2009 - 2013 **Associate research professor**, University “Politehnica” Bucharest:
- 2007 - 2008 **Postdoctoral** visiting positions at Boyce Thompson Institute/Cornell, DIMACS
- 2004 - 2006 **Postdoctoral Research Associate**, Yale University
- 2001 - 2004 **Research Staff Member**, IBM TJ Watson Research Center
- 2000 **Summer Intern**, IBM TJ Watson Research Center
- 1996 - 2000 **Research Assistant**, Center for Advanced Information Processing, Rutgers University
- 1996 **Research Assistant**, Dept. of Electrical and Computer Engineering, University of Colorado, Colorado Springs
- 1993 - 1995 **Junior Faculty**, Researcher, University “Politehnica” Bucharest
- 1993 **TEMPUS Research student**, LTIRF Grenoble France

Awards

- 3 **PRECISI Research Excellence Awards**, UEFISCDI, 2013, 2014, 2015
- 2 **IBM Invention Achievement Awards**, 2003, 2004
- VR 2002 mention **award for conference paper**
- TEMPUS** (European Commission Education Program) Fellowship, 1993
- “Traian Lalescu”** National Physics Contest Award - college, 1990
- National Merit Scholarship** - college, 1990, 1991, 1992, 1993
- Romanian **National Physics Olympiad** Awards 1984, 1985, 1986

Member of professional societies

- SIAM** - Society for Industrial and Applied Mathematics
- ACM** - Association for Computing Machinery, senior member
- EPS** - European Physical Society, **SPIE** - The International Society for Optics and Photonics
- ISCB** - International Society for Computational Biology

Publications and Patents

1 textbook, 7 book chapters, 30 journal papers, over 60 publications in journal and conference proceedings; (see attached list). Researcher ID: B-7013-2008; ORCID: 0000-0002-7580-6792. **Hirsch impact factor: 24** (Google scholar).

8 US/EU patents on system modeling and optimization (see attached list).

Reviewer activity

Nature-Systems Biology, Bioinformatics, BMC Bioinformatics, BMC Cancer, Journal of Computational Biology, IEEE Transactions Journals, ACM journals.

Teaching

BCH 8990 – Systems Biology BCH-EPP Department, MSU, Fall 2018)

CS 427 - Algorithm Analysis (CS Department, CWU, Winter 2016)

CS 540 - Algorithms for Biological Data Analysis (CS Department, CWU, Fall 2015)

Designed a curriculum of 18 courses, organized one biophysics and two data science laboratories and an HPC cluster for a graduate program in Bio-imaging, Bioinformatics, and Complex Systems (Fall 2009-Spring 2012).

Bioinformatics and computational genomics (UPB, Spring 2011, Spring 2012)

Systems biology and molecular modeling (UPB Fall 2011, Fall 2012)

Optimization algorithms (UPB Spring 2011, Spring 2012)

Matrix computations (UPB Fall 2010)

Structure and dynamics of complex networks (UPB 2010)

Mathematical modeling and statistics for engineering (UPB 2009)

Image processing and analysis (UPB 1993-1996)

Funding

Collaborative Proposal: Function and Regulation of Thimet Oligopeptidase-Mediated Proteolytic Pathways in Plant Stress, NSF MCB, 2017-2020, 195K, co-PI.

Analysis of thiol switches in plant-specific thimet oligopeptidases (TOPs), Sponsored by ORED, \$2,000.00. (September 1, 2017 - September 1, 2018).

Identification and Analysis of Plant Gene Regulatory Networks for Crop Improvement. MAFES, 2018-2019, PI.

Analysis of transcriptional responses of sweet potato under abiotic stress, MAFES, 2017-2018, co-PI.

Activity modeling and simulation of bacterial efflux pump inhibitors based on advanced laser methods, PN-II-PT-PCCA-2011-3.1-1350, 2012-2015, 500K USD, PI.

Spectral analysis of periodic epi-organization of genomes, BRANCUSI-RO-FR-2013, 2013-2014, PIs: George Popescu, Francois Kepes (CNRS).

Inverse Networks Problems in Systems Biology: new methods for signaling networks structure and dynamics analysis, XSEDE allocation grant, 2013-2014, PI: George Popescu (BTI).

Boyce Thompson Institute bioinformatics grant, 2012-2014, 100K, PI.

Advanced master program in Bio-imaging, Bioinformatics, and Complex Systems, POSDRU-61756 2010-2013, 4M USD, Co-organizer.

IBM Adventurous Research program: OZONE: Self-managing Overlay for Large Scale Distributed Applications (IBM Research) 2002-2004.

Middleware for supporting interactive applications on the grid (IBM), 2003-2004.

Institute service, committees and special responsibilities

Lead invited editor for Complexity Journal on *Dynamical Analysis of Biological Systems*, (co-editors: Eberhard O. Voit, GATECH, Constantin Udriste, UPB).

Workshop Organizer, Poster presentations, *The 15th Annual MCBIOS Conference*, Starkville, MS. (September 1, 2017 - March 31, 2018).

Reviewer for Granting Agencies: NSF *GRFP* 2019 reviewer. NSF *ad hoc* reviewer – Computational biology, Algorithms in the Field 2017, UEFISCDI 2014, 2015, 2017, DOE – SmartGRID 2009.

Co-organization of COST activities: “Antibiotic transport and efflux: new strategies to combat bacterial resistance” (BM0701) 2012.

Designed and co-developed "Bio-Photonics Laboratory" infrastructure at the UPB, 2010-2012.

Conference organization: IEEE Virtual Reality 2002, Orlando Florida (Publications chair), IEEE VR 2000, New Brunswick, New Jersey (Video Proceedings Chair).

IBM academic initiative program 2012-2015

IBM summer intern mentorship program 2002-2003

IBM Broadband Computing Strategy team 2001-2002

Research associate, graduate student training

<u>Name</u>	<u>Training period</u>	<u>Present Position</u>
<u>Philku Lee</u>	<u>05/19-Present</u>	Graduate research assistant, Math and Statistics Dept., MSU
<u>Tobias Oketch</u>	<u>01/19-Present</u>	Graduate research assistant, Math and Statistics Dept., MSU
Thualfeqar Al-Mohanna	01/18-Present	Graduate research assistant, BCH-EPP, MSU
Philip Berg	01/18-Present	Graduate research assistant, BCH-EPP, MSU
Himangi Srivastava	06/18-Present	Graduate research assistant, ECE, MSU
Norbert Bokros	07/16-12/2018	Graduate research assistant, BCH-EPP, MSU
Gizem Dimlioglu	07/16-Present	Graduate research assistant, BCH-EPP, MSU
Tatiana Alexandru	2013-Present	PhD candidate, NILPRP and University of Bucharest
Alexandru Stoicu	2014-2015	M.S. candidate, NILPRP and University of Bucharest
Camelia Moldovan	2012-2013	M.S. candidate, University Politehnica of Bucharest

Languages: English, French, Romanian

Publications

Journal Papers

Philku Lee, **George Popescu**, Seongjai Kim, (2019). *Nonoscillatory Alternating Direction Procedures for Reaction-Diffusion Equations in Systems Biology* (Complexity Journal submission)

Drew Ferrell, Dimlioglu G, Youngblood C, Himangi Srivastava, Duke M, Liu F, Scheffler B, Reddy R, Popescu SC, **Popescu GV**. (2019). Dynamics of the transcriptional responses of sweet potato under abiotic stress. (Genome Biology submission).

Dimlioglu, G., H. Srivastava, D. Ferrell, J. Stevens, **Popescu, G. V.** Popescu, S. C. (2019). Determining the function of ILKs (Integrin-Linked Kinases) in Innate Immunity and Hyperosmotic Stress Response. (Genome Biology submission).

Joe Emerson, James Stevens, Norbert Bokros, and **George Popescu**. (2019). "Gene family analysis using Random Forest classification", submission PLOS Computational Biology.

Himangi Srivastava, Drew Ferrell, and **George V. Popescu**. (2019). NetSeekR: A networks analysis pipeline for RNASeq time series data, (submission to BMC Bioinformatics journal).

Al-Mohanna, T., Ahsan, N., Bokros, N. T., Dimlioglu, G. C., Reddy, R. K., Shankle, M. C., **Popescu, G. V.**, Popescu, S. C. (2019). Proteomics and Proteogenomics Analysis of Sweetpotato (Ipomoea batatas) Leaf and Root. J Proteome Res.18(7):2719-2734. doi: 10.1021/acs.jproteome.8b00943. Epub 2019 Jun 17.

Bokros, N., Popescu, S. C, **Popescu, G. V.** (2019). Multispecies MAPKKK analysis reveals conserved MAP3K expansions and defines the MAP3K gene family in Gossypium hirsutum. BMC Bioinformatics. 2019 Mar 14;20(Suppl 2):99. doi: 10.1186/s12859-019-2624-9.

Berg, P., McConnell, E., Hicks, L., Popescu, S. C, **Popescu, G. V.** (2019). Evaluation of linear models and missing value imputation for the analysis of peptide-centric proteomics. *BMC Bioinformatics*. 2019 Mar 14;20(Suppl 2):102. doi: 10.1186/s12859-019-2619-6. (best paper).

Brauer, E. K., **Popescu, G. V.**, Singh, D., Calvino, M., Gupta, B., Chakravarthy, S., Collmer, A., Popescu, S. C. (2018). Integrative network-centric approach reveals signaling pathways associated with plant resistance and susceptibility to *Pseudomonas syringae*. *PLOS Biology*, 16(12), e2005956.

Berg, P. C., McConnell, E., Westlake, T., Wilson, K., **Popescu, G. V.**, Hicks, LM, Popescu, S. C. (2018). Proteome-wide analysis of cysteine reactivity during effector-triggered immunity. *Plant Physiology*, pp.01194.2018.

Campe R, Langenbach C, Leissing F, **Popescu GV**, Popescu SC, Goellner K, Beckers G, Conrath U. (2015). "ABC transporter PEN3/PDR8/ABCG36 interacts with calmodulin and is required for Arabidopsis nonhost resistance". *New Phytol*. 2016 Jan;209(1):294-306. doi: 10.1111/nph.13582. Epub 2015 Aug 28.

Westlake TJ, Ricci WA, **Popescu GV** and Popescu SC (2015). "Dimerization and thiol sensitivity of the salicylic acid binding thimet oligopeptidases TOP1 and TOP2 define their functions in redox-sensitive cellular pathways". *Front. Plant Sci*. 6:327. doi: 10.3389/fpls.2015.00327

Singh DK, Calviño M, Brauer EK, Fernandez-Pozo N, Strickler S, Yalamanchili R, Suzuki H, Aoki K, Shibata D, Stratmann JW, **Popescu GV**, Mueller L, and Popescu SC (2014) "The tomato kinome and the TOKN ORFeome: resources for the study of kinases and signal transduction in tomato and Solanaceae ." *Molecular Plant Microbe Interaction*; 27:7-17.

Magali M, Westlake T, Zampogna G, **Popescu GV**, Tian M, Noutsos C, and Popescu SC. "The Arabidopsis Oligopeptidases Top1 and Top2 Are Salicylic Acid Targets That Modulate SA-Mediated Signaling and the Immune Response." *The Plant Journal* 76, no. 4: 603-614.

Lee HY, Bowen CH, **Popescu GV**, H.-G. Kang, N. Kato, S. Ma, S. Dinesh-Kumar, M. Snyder and S. C. Popescu, "RTNLB1 and RTNLB2 Reticulon-Like Proteins Regulate Intracellular Trafficking and Activity of the FLS2 Immune Receptor, *Plant Cell Online* 2011, 10.1105/tpc.111.089656.

Popescu SC, **Popescu GV**, Bachan S, Zhang Z, Gerstein M, Snyder M, and S. P. Dinesh-Kumar, "MAPK target networks in *Arabidopsis thaliana* revealed using functional protein microarrays", *Genes Dev*. 2009 Jan 1;23(1):80-92. Epub 2008 Dec 18.

Popescu SC, **Popescu GV**, Bachan S, Zhang Z, Seay M, Gerstein M, Snyder M, and S. P. Dinesh-Kumar, "Differential binding of calmodulin-related proteins to their targets revealed through high-density *Arabidopsis* protein microarrays", *PNAS*. 2007 Mar 13;104(11):4730-5.

Urban AE, J. Korbel, R. Selzer, T. Richmond, J. Cubells, A. Hacker, **Popescu GV**, R. Green, B. Emanuel, M. Gerstein, S. M. Weissman and M. Snyder, "High resolution mapping of DNA copy alterations in human chromosome 22 using high density tiling oligonucleotide arrays," *PNAS*, March 2006, 103 (12), pp. 4534-4539.

Feingold, E.A. et al.. "The ENCODE (ENCyclopedia of DNA Elements) Project." *Science* 306:636-640.

Book Chapters

Al-Mohanna, T. C., Bokros, N. T., Ahsan, N. Popescu, S. C., **Popescu, G. V.** (2019). Methods for optimization of protein extraction and proteogenomic mapping in sweetpotato. Book chapter in *Plant Proteomics Methods and Protocols* (Springer Nature Methods in Molecular Biology), accepted.

Popescu GV, C. Noutsos, Popescu SC (2016) "Big Data in Plant Science: data mining techniques for plant genomics and proteomics", *Methods in Molecular Biology*: "Data Mining Techniques for the Life Sciences, 2-nd edition" (Springer). Eds: Carugo, O., Eisenhaber, F.

Brauer EK, Popescu SC, **Popescu GV**, (2014) "Experimental and analytical approaches to characterize plant kinases using protein microarrays." *Methods in Molecular Biology*: "Plant MAP Kinases" (Springer), pp. 217-235.

Popescu GV, Popescu SC, "Complexity and modularity of MAPK signaling networks", *Handbook of Research in Computational and Systems Biology: Interdisciplinary Applications*, IGI Global 2010.

Course notes

Popescu GV, Popescu SC, *Selected Topics in Computational Biology*, University "Polithenica" Bucharest Press, 2013.

Talks and conferences:

- **March 2018**, "Network-centric analysis of pathways for resistance and susceptibility in host pathogen interactions," The 15th Annual MCBIOS Conference: MCBIOS 2018 (MCBIOS-XV), Mississippi State University, Starkville, MS.
- **July 2014**, "Activity modeling and simulation of bacterial efflux pump inhibitors based on advanced laser methods", INFLPR, Romania - mid project results and evaluation.
- **September 2013**, "Spectral analysis of periodic epi-organization of genomes", iSSB, GENOPOLE, Evry, France.
- **July 2012**, "Activity modeling and simulation of bacterial efflux pump inhibitors based on advanced laser methods", INFLPR, Romania.
- **August 2011**, "Computational and biophysical methods for the comprehensive characterization of molecular interactions in cellular networks", Dana Farber Research Institute, Center for Cancer Computational Biology.
- **July 2011**, "Computational and biophysical methods for the comprehensive characterization of molecular interactions in cellular networks", Boyce Thompson Institute for Plant Research.
- **November 2009**, "Understanding genome variation: CNV, SNP and pathway analysis", Institute for Neuro and Bioinformatics, Luebeck University, Germany.
- **October 2008**, "Large scale identification of MAPK networks in *Arabidopsis Thaliana*", RECOMB Regulatory Genomics, Systems Biology and DREAM3 Workshop.
- **October 2008**, "Computational models for comparative genomics hybridization analysis", DM-HI08, INFORMS Annual Meeting, Pittsburgh.
- **September 2008**, "Understanding cellular control: insights from genome variation, epigenetic regulation and signaling pathway analysis", Wayne State University, Center for Molecular Medicine and Genetics, Detroit, MI.
- **September 2008**, "Understanding genome variation: DNA copy number variation detection, SNP analysis and pathway inference", Cold Springs Harbor Laboratory.
- **August 2008**, "Understanding genome variation: DNA copy number variation detection, SNP analysis and pathway inference", NIH – NIDDK, Bethesda, Maryland.
- **April 2008**, "Efficient algorithms for hard optimization problems: applications to combinatorial biology", EMBL Hamburg.
- **October 2007**, "Computational models for comparative genomics and protein networks inference", H. Lee Moffitt Cancer Center and Research Institute, Tampa, FL.
- **October 2006**, "Transposition Search for Optimal Graph Embedding", INFORMS Annual Meeting, Pittsburgh.
- **February, 2006**, "Computational models for micro-array data analysis", Dana Farber Cancer Institute, Harvard University, Boston MA.
- **November 2005**, "In-silico DNA micro-array hybridization: Computational models for estimating DNA micro-array hybridization efficiency", 8-th Annual Computational Genomics Conference.

Other publications

Andrei IR, **Popescu GV**, Pascu ML. "Optical spectrum behaviour of a coupled laser system under chaotic synchronization conditions," Journal of the European Optical Society-Rapid Publications Volume: 8, 2013, 6 pp. DOI: 10.2971/jeos.2013.13054

Pascu ML, **Popescu GV**, Ticos CM, Andrei IR. "Unresonant interaction of laser beams with microdroplets," Journal of the European Optical Society-Rapid Publications Volume: 7, 2012, 18 pp. DOI: 10.2971/jeos.2012.12001

M. Bouzit, G. Burdea, **Popescu GV**, and R. Boian, "The Rutgers Master II-New Design Force-Feedback Glove", IEEE/ASME Transactions on Mechatronics, Vol. 7(2), pp. 256-263, June 2002.

Girone M., Burdea, G., M. Bouzit, **Popescu GV**, and J. Deutsch, "A Stewart Platform-based System for Ankle Telerehabilitation," invited article, Special Issue on Personal Robotics, Autonomous Robots, Vol. 10, pp. 203-212, Kluwer, March 2001.

Burdea, G., **Popescu GV**, V. Hentz, and K. Colbert, "Virtual Reality-based Orthopedic Tele-rehabilitation," IEEE Transactions on Rehabilitation Engineering, Vol. 8, No. 3, pp. 429-432, September 2000.

A. Kolcz, J. Alspector, M. Augusteijn, R. Carlson and **Popescu GV**, "A line-oriented approach to word spotting in handwritten documents," Pattern Analysis and Applications, vol. 3, no. 2, pp. 153-168, 2000.

Popescu GV, G. Burdea, M. Bouzit, M. Girone, and V. Hentz, "A Virtual-Reality-Based Telerehabilitation System with Force Feedback," IEEE Transactions on Information Technology in Biomedicine, vol. 4, No. 1, pp. 45-51, March 2000.

G. Burdea, G. Patounakis, **Popescu GV**, R. E. Weiss, "Virtual Reality-based Training for the Diagnosis of Prostate Cancer", IEEE Transactions on Biomedical Engineering, Vol. 46, No. 10, pp 1253-1260, October 1999.

Popescu GV, G. Burdea, and H. Trefftz, "Multimodal interaction modeling," in Handbook of Virtual Environments; Design, Implementation and Applications, K. Stanney ed., 1-st edition Lawrence Erlbaum Associates, Inc. February 2002, 2-nd edition CRC Press 2014.

Popescu GV, "Distributed indexing networks for efficient large-scale group communication," in Handbook of Research on P2P and Grid Systems for Service-Oriented Computing: Models, Methodologies and Applications, N. Antonopoulos, G. Exarchakos, M. Li and A. Liottaeds, IGI Global 2009.

Conference proceedings

Berg, P. (Author & Presenter), Popescu, S. C. (Author), Popescu, G. V. (Author), Southeast Regional Biophysical Consortium, "Methodologies for proteome-wide analysis of cysteine reactivity during effector-triggered immunity," Mississippi State, Mississippi, USA. (June 4, 2018).

Bokros, N. (Author & Presenter), Popescu, S. C. (Author), Popescu, G. V. (Author), The 15th Annual MCBIOS Conference: MCBIOS 2018 (MCBIOS-XV), "The Examination of MAP3Ks in Plants and Protein Kinase Characterization," The MidSouth Computational Biology and Bioinformatics Society, Starkville, MS. (March 29, 2018).

Andrei IR, **Popescu GV**, Ticos CM, Pascu ML. "Optical Spectrum Analysis of Chaotic Synchronization in a Bidirectional Coupled Semiconductor Laser System," Chaos and Complex Systems, Ch 60, pp. 425-429. Springer, 2013, DOI: 10.1007/978-3-642-33914-1_60

Popescu GV, "Transposition Search for Optimal Graph Embedding", INFORMS Annual Meeting, Pittsburgh, 2006.

G. Popescu, Z. Liu. "Network overlays for efficient control of large scale dynamic groups" Proceedings of DS-RT 2006. Torremolinos, SPAIN, pp: 135-142, 2006.

T. Chang, J. Fan, M. Ahamad, **G. Popescu**, Z. Liu. "Preference-aware overlay topologies for group communication," Proceedings of GLOBECOM '05: IEEE Global Telecommunications Conference, St Louis, MO, Vols 1-6 Pages: 641-645, 2005

Simon J. E. Taylor, **George V. Popescu**, J. Mark Pullen, Stephen John Turner. "Distributed Simulation and the Grid: Position Statements." Proceedings of DS-RT 2004, Budapest, HUNGARY, pp. 144-149, 2004.

G. Popescu, Z. Liu. "Stateless application-level multicast for dynamic group communication", Proceedings of DS-RT 2004. Budapest, HUNGARY, pp. 20-28, 2004.

G. Popescu, C. Codella. "An Architecture for QoS data replication in Networked Virtual Environments" Proceedings of IEEE VR2002, March 2002, Orlando FL, pp. 41-48. 2002.

T. Chang, **G. Popescu**, C. Codella. "Scalable and Efficient Update Dissemination for Interactive Distributed Applications", Proceedings of ICDCS 2002, Vienna, Austria, pp 143-150, 2002.

G. Popescu, Z. Liu. "On Scheduling 3D model transmission in Networked Virtual Environment" Proceedings of IEEE DSRT 2002, pp. 127-134, 2002.

Popescu GV, G. Burdea and R. Boian, "Shared Virtual Environments for Telerehabilitation," Proceedings of Medicine Meets Virtual Reality 2002, IOS Press, Newport Beach CA, pp. 362-368, January 23-26 2002.

M. Bouzit, **Popescu GV**, G. Burdea, and R. Boian, "The Rutgers Master II-ND Force Feedback Glove", Proceedings of IEEE VR 2002 Haptics Symposium, pp. 145-152, Orlando FL, March 2002.

M. Girone, G. Burdea, M. Bouzit, **Popescu GV** and J. Deutsch, "Orthopedic Rehabilitation using the "Rutgers Ankle" Interface," Proceedings of Virtual Reality Meets Medicine 2000, IOS Press, pp. 89-95, January 2000.

Popescu GV, G. Burdea, M. Bouzit, "Virtual Reality Simulation Modeling for a Haptic Glove," Computer Animation'99 Conference, Geneva, Switzerland, pp. 195-200, May 26-28, 1999.

Popescu GV, G. Burdea, M. Bouzit, M. Girone, and V. Hentz, "PC-Based Telerehabilitation System With Force Feedback," Proceedings of Medicine Meets Virtual Reality (7) Conference, "The Convergence of Physical Informational Technologies: Options for a New Era in Healthcare", IOS Press, Amsterdam, Vol. 62, pp. 262-267, 1999.

Popescu GV and G. Burdea, "Dextrous Haptic Interface for Jack," ASME WAM, Seventh Annual Symposium on Haptic Interfaces for Virtual Environment, Anaheim CA, November 19-20, DSC Vol. 64, pp. 189-194, 1998.

Burdea, G., G. Patounakis, **Popescu GV** and R. Weiss, "Virtual Reality Training for the Diagnosis of Prostate Cancer," IEEE International Symposium on Virtual Reality and Applications (VRAIS'98), Atlanta, GA, March, pp. 190-197. Reprinted in IEEE Proceedings of Information Technology Applications in Biomedicine (ITAB'98), Washington DC, pp. 6-13 invited talk, May 16-17, 1998.

Andre, M., **Popescu GV**, A. Shaikh, A. Medl, I. Marsic, C. Kulikowski, and J. L. Flanagan, "Integration of Speech and Gesture for Multimodal Human-Computer Interaction," Second International Conference on Cooperative Multimodal Communication, 28-30 January 1998, Tilburg, The Netherlands.

Medl, A., I. Marsic, **Popescu GV**, A. Shaikh, M. Andre, C. Kulikowski and J. Flanagan, "Multimodal Interface for Collaborative Mission Planning," Workshop on Real-time Intelligent User Interfaces for Decision Support, and Information Visualization, 6-9 January 1998, San Francisco, CA.

Burdea, G., S. Deshpande, **Popescu GV**, N. Langrana, D. Gomez, D. DiPaolo, and M. Kanter, "Computerized Hand Diagnostic/Rehabilitation System Using a Force Feedback Glove," Proceedings of Medicine Meets Virtual Reality 5 Conference, pp. 141-150, 1997.

A. Kolcz, J. Alspector, M. Augusteijn, R. Carlson and **Popescu GV**, "A line-oriented approach to word spotting in handwritten documents," University of Colorado at Colorado Springs Technical Report 1998-ECE-1 March 1998.

A. Kolcz, J. Alspector, M. Augusteijn, R. Carlson and **Popescu GV**, "Visual Keyword Based Word-Spotting in Handwritten Documents," Proceedings of the SPIE International Symposium on Document Recognition V (Part of the SPIE Photonics-West' 98 Conference), San Jose, USA, January 26-30 1998.

A. Kolcz, J. Alspector, M. Augusteijn, R. Carlson and **Popescu GV**, "Keyword search in handwritten documents," Proceedings of the International Workshop on Applications of Neural Networks to Telecommunications 3 (IWANNT'97), Melbourne, Australia. Eds. J. Alspector, R. Goodman and T. X. Brown. pp. 171-180. LEA, Publishers, Mahwah, New Jersey, 1997.

C. Vertan, V. Buzuloiu, **Popescu GV**. "Morphological Like Operators for Color Images", in Proc. of EUSIPCO' 96, 10-13 Sept. 1996, Trieste, Italy, vol. 1, pp. 165-168

C. Vertan, M. Malciu, V. Buzuloiu, **Popescu GV**. "Median Filtering Techniques for Vector Valued Signals", in Proc. of the IEEE International Conference on Image Processing ICIP' 96, 16-19 Sept. 1996, Lausanne, Switzerland, vol. 1, pp. 977-980.

V. Buzuloiu, C. Vertan, **Popescu GV**, M. Malciu: "Introducing Mathematical Morphology for Vector Signals", in Proc. of the 3rd Conference on Applied and Industrial Mathematics ROMAI '95, 17-19 Sept. 1995, Oradea, Romania.

Popescu GV, Buzuloiu V., Malciu M., Vertan C., "Multidimensional signal compression using wavelet transform", The XXXVI International Workshop of the A.T.M. Bucharest, Vol. 4, pp. 191-198, Bucharest, 16-17 November 1995.

Popescu GV, Luthon F., Caplier A., "Analog resistive networks for motion detection", 4-th International Conference in Optics, "Romopto '94", Proceedings SPIE Vol. 2461, 3 pp., Bucuresti, 5-8 Sept. 1994.

V. Buzuloiu, M. Malciu, **Popescu GV**, "Improvements to parameter extraction from noisy signals", 4-th International Conference in Optics, "Romopto '94", Proceedings SPIE Vol. 2461, 4 pp., Sept. 1994.

Luthon F., **Popescu GV**, Caplier A., "An MRF Based motion detection algorithm implemented on analog resistive network", ECCV '94, Lecture notes in Computer Science, Jan-Olof-Eklund Ed., Vol. 800, pp. 167-174, Stockholm, May 94.

Patents

Popescu GV, Liu Z, Codella C, "Method for efficient data transmission in Interactive Networked Environments",

Popescu GV, Liu Z, "A method of establishing transmission headers for stateless group communication",

Popescu GV, Liu Z, "A method of stateless group communication and repair of data packets transmission to nodes in a distribution tree",

Popescu GV, Liu Z, Sahu S, "Method and apparatus to support application and network awareness of collaborative applications using multi- attribute clustering",

Popescu GV, Liu Z, Sahu S, "Method an apparatus for providing dynamic session management for distributed interactive applications"

Popescu GV, Liu Z, Sahu S, "Method and aparatus for virtualization network resources"

Popescu GV, Liu Z, "Hierarchal space partitioning for scalable data distribution in large scale interactive applications"

Popescu GV, Dube P, Liu Z, Pendarakis D, "Method for efficient Construction of Network Overlays Through Interconnection Topology Embedding".

Popescu GV, "Transposition Search method for optimal topology construction", patent application – filed.