Allon Guez Brief CV

Contact: 560 Sprague Rd Narberth PA 19072 USA; Tel +1 215 470 2300; guezall@gmail.com

- Over 30 years of experience in international, intelligent automation products with focus on medical devices and robotics. Expertise in early stage, R&D, product & business development, capital raising, IP strategy, strategic partnerships, joint ventures and M&A.
- Executive leadership positions in industry: GraceFall Inc., ControlRad Systems; MediGuide (now a Saint Jude Medical); Trellis Photonics; Trestle Holdings.
- Founder of several start-ups.
- Academic positions include: Drexel University (currently a full professor of engineering); Tel Aviv & Hebrew universities and Technion, Israel,
- Has over 200 technical publications, book chapters and patents.

SAMPLE COMMERCIAL PROJECTS

- 2016 – Date   Aqeel Inc. Founder and COB

- 2014 – Date   GraceFall Inc. Founder & CEO

- 2013 – Date   ControlRad Systems Inc. Founder& CEO then President and now, since 1/16 on the board. Raised $27M. Engaged Siemens as strategic licensing partner. Developed radiation reduction technology using real time operator attention monitoring.

- 2008 – 2010   MediGuide Ltd. VP Business Development. (Sold to St. Jude Medical Company). MediGuide (now SJM since 1/10). Developed Electromagnetic Medical navigation and tracking technology for the cardiovascular market.

- 2006 – 2007   Trestle Holdings Inc. – A Telemedicine Public company. Member of the Board of Directors. Sold the company assets and shell on behalf of the company shareholders.

- 1999- 2000   TrellisPhotonic (VP Business Development). Trellis raised $40M (3M, Carlyle group, Pitango ventures). All optical switching KLTN crystal technology. Closed.

- U. of Pennsylvania and Drexel universities. Automation and materials for advanced atrial fibrillation therapy.

- GE Healthcare and Galil Medical (Consultant - Oncura Joint Venture). Developed Optimized supply chain automation and demand forecasting for the Brachytherapy and Cryotherapy for Prostate Cancer.

- The Children Hospital of Pennsylvania. Developed CFD based models, Virtual surgery aid algorithms and MRI dynamic gating interfaces for Obstructive Sleep Apnea

EDUCATION	DEGREE/YEAR	FIELD OF STUDY
Drexel University, Philadelphia PA.	MBA 1995	Finance
U. of Florida, Gainesville, Fla.	Ph.D. 1983	Electrical Engineering
U. of Florida, Gainesville, Fla.	M.S. 1981	Electrical Engineering
Technion, Israel Inst. of Technology, Israel	B.Sc. 1978	Electrical Engineering
Tel Aviv University Israel	Law (1971-2 incomplete)	Law

ACADEMIC POSITIONS HELD: Role and Focus	Organization
1984 – Date. Full Professor, Robotics & Automation; Biomedical Engineering, Neuro-computing program, Control engineering program and Business Systems Engineering program; Medical Robotics program.	Drexel University, USA
2011-12 Visiting Professor. Advanced Neuro-therapy & diagnostics and closed loop DBS	Hebrew University Jerusale
2007-2008 Visiting Professor. Research and teaching in: Medical Robotics and Medical Navigation and Control	Technion – Israel Institute Technology, Electrical Engineering
1999-2000 Visiting Professor. Business Systems Engineering program	Tel Aviv University Racannati Business School
1992- 1993 Visiting Professor. Research and Teaching in Adaptive Neuro-Control and Neuro-computing	Technion – Israel Institute Technology, Computer Sci

SELECTED INDUSTRIAL POSITIONS HELD: Role and Focus	Organization –Period
Founder & Board Member Medical radiation reduction in interventional radiology	ControlRad Systems Inc. 2016
Founder & COB – Personal portable Video Laryngscope	IzziScope – 2015
Founder & COB – Human posture stability monitoring and protection	Grace Fall Inc, (Brain Signals Inc.) 2013
Founder, President & CEO. Medical imaging radiation reduction in interventional radiology.	ControlRad (IntelliRad) Systems Inc. 2011-2015
Consultant. Advanced large scale solar systems controllers design	Alencon Systems Pennsylvania – 2013
V.P. Business development. Magnetic Navigation in interventional radiology. Sold to St. Jude Medical in 2009.	MediGuide – A St. Jude Company 2008-2010
Member of the Board of Directors. Sold the company assets and shell on behalf of the company shareholders.	Trestle Holdings Inc. – A Telemedicine Public company 2006
Expert Witness Process Control. Effective defense led to out of court settlement in 2 separate patent infringement and validity cases. Savings of Millions of US$ for clients.	Emerson Process Management Inc. 2004-2006
Consultant. Development of new Mortality Forecasting Data Mining Application to Life Settlement tools in the Insurance Business.	Penn Mutual Life 2005
Consultant. Supply chain optimization, sales forecasting and production optimization. Savings in Millions US$ in scrap and production waste.	Oncura/ GE Healthcare/ Galil Medical 2004-2006

V.P. Business development. Trellis raised 40M$ in capital and managed the introduction of new all optical fast switching technology to optical communication market. Agilent Technology JV; IP strategy.	Trellis Photonics Inc. 1999-2000
1975 to 2011 Consultant Developed new products and technologies in multiple disciplines and markets: biomedical devices, medical robotics, virtual surgery, medical imaging, finance, Supply chain and business development planning and execution; intellectual property and general automation.	Various (over 40) Companies internationally

Sample Current Projects:

1. Sijie Ran – Magnetic Swarm Control with Gary Freedman- Ph. D – Ongoing
2. Zhou Wang – Magnetic Testbed with Gary Freedman - Ph. D – Ongoing

3. Atrial Fibrilation Tissue Modeling with John Bullinga Upenn, D Frisch Jefferson (Celal
4. Alagoz Ph D – Ongoing)

5. AFIB Data Base Management and Data Mining with John Bullinga Upenn; D Frisch Jefferson   (Saran Pharthrodon Ph D – Ongoing)

6. Conductive Polymer design for Left Atrium Implants – Yuval Shmueli and Miriam Rafailovich - Ph. D – Ongoing at Stonybrook.

7. Closed Loop Control Deep Brain Stimulation with Hagai Bergman Hebrew University (Dan Valsky – Ph. D – Ongoing)

Recent Patenting Activities:

Application no. Filing date   Status   Patent no. Grant date   Equivalents

1. 13/311,495   5-Dec-2011   Pending   India, Japan (Granted), Russia (Granted), Europe, China (Granted), Brazil, Korea (Granted), Israel, Hong Kong
2. 14/647,689   27-May-2015   Pending   Canada, Europe, China, Korea, Japan, India, Russia
3. 13/311,486   5-Dec-2011   Granted   8445878   21-May-2013
4. 14/650,916   10-Jun-2015   Pending   Korea, India, Canada, Europe, Russia, Japan, China
5. 14/910,737   8-Feb-2016   Pending

6. 13/856,429   3-Apr-2013   Granted   8754388   17-Jun-2014   India, Europe, Korea, Russia (Granted) Japan, Brazil, China
7. 14/489,538   18-Sep-2014   Pending
8. 15/103,668   10-Jun-2016   Pending   Europe, China, Japan
9. 14/300,472   10-Jun-2014   Granted   9050028   9-Jun-2015
10. 14/668,068   25-Mar-2015   Granted   9095283   4-Aug-2015
11. 14/222,982   24-Mar-2014   Granted   9131989   15-Sep-2015   Europe
12. 14/754,104   29-Jun-2015   Pending
13. 14/821,830   10-Aug-2015   Granted   9398937   26-Jul-2016
14. U.S. Utility Patent Application No. 14/520,385, filed October 22, 2014 (U.S. Patent Publication 2015/0120007)
15. U.S. Utility Patent Application No. 15/144,712, filed on May 2, 2016 (continuation-in-part of the '385 Application, Not Yet Published)
16. U.S. Provisional Patent Application No. 62/257220, filed on November 18, 2015 (Not Published)
17. Colonoscopy & Methods of Use. USPTO Provisional Application # USSN 62/394,774 ;U. Eichler; A. Landesberg; A. Guez; 9/15/16.
18. TREATMENT FOR CARDIAC CONDUCTANCE ABNORMALITIES; A. Guez; J. Bullinga; Serial No.: 14/781,433; updated 9.15.16.
19. INJURY MITIGATION SYSTEM AND METHOD USING ADAPTIVE FALL AND COLLISION DETECTION, a continuation-in-part of U.S. Patent Application No. 15/144,712. 9.17.16.

SAMPLE PUBLICATIONS (Full list includes over 200 technical papers, book chapters and patents)

Sijie ran, Allon Guez, Gary Friedman; " Magnetically actuated and controlled colloidal sphere-pair swimmer", Dates: submitted 8/23/16. Journal: New Journal of Physics

Alexander Erick Trofimoff[*] and Allon Guez; "Comparative Functional-Structural-Power-Sensing-Intelligence-Dynamic Task- Environmental Study of MIS Robotic Systems Complexity"; OMICS journal Control of Physiological State and Function, 21st January 2015, Vol 2, page 107-122, doi 10.4172/2090-5092.1000107. Now "Journal of Biomedical Systems & Emerging Technologies".

Sijie Ran, Allon Guez, Gary Friedman ; "General Computational Model for Locomotion of Magnetically Actuated Microscopic Object in Viscous Environments"; 06/23/15; Frontier of Bio-magnetic particles Conference, Telluride, CO.

C. Alagoz, A. Guez, A. R. Cohen, J. R. Bullinga, "Spiral Wave Classification Using Normalized Compression Distance: Towards Atrial Tissue Spatiotemporal Electrophysiological Behavior Characterization", 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society MiCo - Milano Conference Center - Milan, Italy, August 2015.

C. Alagoz, S. Phatharodom, A. Guez, "Parameter Estimation of a Phenomenological Cardiac Model based on a Biophysically Detailed Model of Human Atria: A Method for Model

Complexity Reduction Using Extended Kalman Filter", Modeling, Simulation and Applied Optimization (ICMSAO), 2015 6th International Conference, Istanbul, Turkey, May 2015.

C. Alagoz, A.R. Cohen, A. Guez, J.R. Bullinga, "Spiral Waves Clustering Using Normalized Compression Distance", Computing in Cardiology 2014 (Cinc'14), Cambridge, MA, September 2014.

C. Alagoz, J.R. Bullinga, A. Guez,"Parameter Fitting of a Phenomenological Model to a Biophysically Detailed Model of Human Atria for Action Potential Dynamics", Applied Informatics for Health and Life Sciences" (AIHLS'13), Istanbul, Turkey, September 2013.

Plexus Healthcare Innovation Hub - Academic Entrepreneurship Challenges & Dilemma" Panel on 4.28.2016

S. Bhat, T. Kurzweg, A. Guez, and G. Friedman; "Synchronized locomotion of freely suspended disjoint microbeads pairs", APPLIED PHYSICS LETTERS 94, 1/2009.

Paras Shah and Allon Guez, "Mortality Forecasting Using Neural Networks and an Application to Cause- Specific Data for Insurance Purposes", Journal of Forecasting, (2008), Wiley InterScience. (www.interscience.wiley.com) DOI: 10.1002.

Xu C, Sin S, McDonough M, Udupa JK, Arens R, Guez A, Wootton DM, "Computational Fluid Dynamics Modeling of the Upper Airway of Children with Obstructive Sleep Apnea Syndrome in Steady Flow," *Journal of Biomechanics 2006*

Mianyu Wang, Nagarajan Kandasamyy, Allon Guez, and Moshe Kam, "Adaptive Performance Management of Computing Systems via Distributed Cooperative Control", Journal of Internet Computing January 2007.

Shubham K. Bhat, Timothy P. Kurzweg, Allon Guez,"Learning Identification Control for Model Based Opto-Electronic Packaging," IEEE Journal of Special Topics in Quantum Electronics, May/June 2006.

Xu C, Sin S, McDonough M, Udupa JK, Arens R, Guez A, Wootton DM, "Computational Fluid Dynamics Modeling of the Upper Airway of Children with Obstructive Sleep Apnea Syndrome in Steady Flow," *Journal of Biomechanics*, 2006

Kurzweg, A. Guez, S. Bhat, "Model Based Opto-Electronic Packaging Automation, "IEEE Journal of Special Topics in Quantum Electronics, Vol.10, No. 3, May/June 2004, pp.445-454.

Allon Guez, "A Multiple Objectives Optimization Approach to Distributed System Design and Control" CMP'04: Multiple Participant Decision Making; Theory, Algorithms, Software and Applications, May 12--14, 2004, Prague, Czech Republic.

Xu C, Sin S, McDonough M, Udupa JK, Arens R, Guez A, Wootton DM, "Computational Fluid Dynamics Modeling of the Upper Airway of Children with Obstructive Sleep Apnea Syndrome in Steady Flow," *Journal of Biomechanics 2006.*

Shubham K. Bhat, Timothy P. Kurzweg, Allon Guez, "Learning Identification Control for Model Based Opto-Electronic Packaging," IEEE Journal of Special Topics in Quantum Electronics, May/June 2006.

Xu C, Sin S, McDonough M, Udupa JK, Arens R, Guez A, Wootton DM, "Computational Fluid Dynamics Modeling of the Upper Airway of Children with Obstructive Sleep Apnea Syndrome in Steady Flow," *Journal of Biomechanics*, 2006.

T.P. Kurzweg, A. Guez, S. Bhat, "Model Based Opto-Electronic Packaging Automation," IEEE Journal of Special Topics in Quantum Electronics, Vol. 10, No. 3, May/June 2004, pp.445-454.

Gaba, J., Guez, A., Russo, M., "Intelligent Image Analysis for Error Detection and Correction in Automated Laboratory Robot Systems", Laboratory Robotics and Automation Journal (Wiley), Vol. 10, PP. 273-282, September 98.

Guez, A., Tabatabei, E., Hyantai, C., "Errata to Adaptive Sigmoidal Molten Metal Pouring Control", IEEE Trans. On Control Systems Technology, Vol. 6, Number 3, May 1998, PP. 441.

Ahmad, Z., Guez, A., "Adaptive and Learning Control of Robotic Manipulators", Chapter in the book: Methods and Applications of Intelligent Control, Kluwer Academic Publisher, S. Tzafestas, editor, December 1997. Chapter 14, pp. 401-422.

Guez, A., Tabatabei, E., Hyantai, C., "Adaptive Sigmoidal Molten Metal Pouring Control", IEEE Trans. On Control Systems Technology, Vol. 6, Number 2, March 1998, PP. 270-280.

Peterfreund, N., Guez, A., "Structure Based Neural Networks Learning", IEEE Trans. Circuits And Systems, Vol. 44, Number 12, December 97, PP. 1143-1150.

Guez, A., Ahmad, Z., "Auto Tuning of Parameter in Estimation and Control of Robots with Weaker PE Conditions ", IEEE Trans. on Automatic Control, Vol. 42, Number 12, December 97, PP. 1726-1730.

Guez, A., Nevo, I., "Neural Networks and Fuzzy Logic in Clinical Laboratory Computing with Applications to Integrated Monitoring', Clinica Chemica Acta, (Elsevier), Vol. 248 (1996) pp. 73-90.

Piovoso, M., Rokhlenko,V., Kosanovich,K., Guez, A., " Adaptive Global Linearization Applied to CSTR Control," Journal of Process Control, Vol. 5, No. 3, pp. 137-148, 1995.

Bar-kana, I., Guez, A. "Simplified Techniques for Adaptive Control of Robot Systems" Invited Chapter in Advances in Control and Dynamic Systems, Vol. XXXVIII. C.T. Leondes (Editor), Academic Press 1991.

Eilbert, J., Guez, A., "Synergistic Interaction Among Distinct Populations of Neurons," Book Chapter in "Advances in Control Networks and Large Scale PDP Models," Martin Fraser (Editor); Ablex Publisher 1991.

Guez, A.,Rusnak, I.,Bar Kana, I., "Multiple Objectives Optimization Approach to Adaptive and Learning Control", International Journal of Control, Vol. 56, No. 2, September 1992, pp. 469-482.

I., Rusnak, M., Steinberg, A., Guez,I., Bar Kana, "On-line Identification and Control of Linearized Aircraft Dynamics", IEEE AES Magazine, July 1992, pp.56-60.

Nevo, I., Guez, A., Ahmed, F., Roth, J., "Vital Function Status A Comprehensive Display to Enhance Decision Making in Anesthesia", Journal of Clinical Monitoring, Vol. 7, No. 1, PP. 124-125, 1991.

Kumar, S., Guez, A., "ART Based Adaptive Pole Placement for Neurocontrollers," Neural Networks, Vol.4, 1991, pp. 319-335.

Guez, A., Ahmad, Z. "Applying Neural Networks to the Inverse Kinematic Problem" Journal of Neural Network Computing ,Vol. 1, No. 4, Spring 1990, pp. 21-32.

Bar-Kana, I., Guez, A., "Simple Adaptive Control for a Class of Nonlinear Systems with Application to Robotics," International Journal of Control, 1990, Vol. 52, No. 1, pp. 77-99.

Guez, A., Zaharakis, S., " Time Optimal Navigation via Slack Time Sets," IEEE Trans. on System Man and Cybernetics, Vol. 20, No. 6, November/December 1990, pp. 1396-1406.

Guez A., Selinsky J., "Neurocontroller Design Via Supervised and Unsupervised Learning" Journal of Intelligent and Robotic Systems, Vol. 2, 1989,pp. 307-335.

Guez, A., Kam, M., Eilbert, J., "Computational Complexity Reduction for Neural Network models," IEEE Trans. on System Man and Cybernetics, Vol. 19, No. 2, March/April 1989, pp. 409-414.

Kam, M., Cheng, R., Guez, A., "Pattern Retrieval and Learning in Nets of Asynchronous Binary Threshold Elements," IEEE Trans. on Circuits and Systems, Vol. 36, No. 3, March 1989, pp. 353-364.

Guez, A., Selinsky, J., "A Trainable Neuromorphic Controller," Journal of Robotic Systems, Vol. 5, No. 4, August 1988, pp. 363-388.

Guez, A., Protopopescu, V., Barhen, J., "On the Stability, Storage Capacity, and Design of Nonlinear Continuous Neural Networks," IEEE Trans. on System Man and Cybernetics, Vol. 18, No. 1, January/February 1988, pp. 80-87.