

Jonathan Gryak

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Education

- 2017 **Ph.D. Computer Science**, *CUNY Graduate Center*, New York, NY.
- 2016 **M.Phil. Computer Science**, *CUNY Graduate Center*, New York, NY.
- 2009 **M.S. Mathematics**, *Fairfield University*, Fairfield, CT.
- 2003 **B.S. Mathematics, Computer Science (Dual Major)**, *Rensselaer Polytechnic Institute*, Troy, NY.

Academic Appointments

- 2019- **Senior Scientist**, *Michigan Institute of Data Science*, University of Michigan, Ann Arbor
- 2019- **Assistant Research Scientist**, *Department of Computational Medicine and Bioinformatics*, University of Michigan, Ann Arbor
- 2018-2019 **Lecturer III**, *Department of Computational Medicine and Bioinformatics*, University of Michigan, Ann Arbor
- 2017- **Research Manager**, *Biomedical and Clinical Informatics Lab*, University of Michigan, Ann Arbor
Responsible for the operation of the Biomedical and Clinical Informatics Laboratory, working with the Principal Investigator Kayvan Najarian, supervising over 40 researchers and overseeing research projects with \$12M in current funding.

Professional Positions

- 2011-2017 **Infrastructure Manager**, *Westport Public Schools*, Westport, CT
- 2005-2014 **Independent Technology Consultant**
Provided enterprise-level IT consulting and support to municipal and educational clients.
- 2005-2011 **Senior Network Engineer**, *Westport Public Schools*, Westport, CT
- 2002-2005 **Network Engineer**, *OMNI Data*, West Haven, CT

Research Interests

Artificial Intelligence/Machine Learning
Applied Algebra
Computational Medicine

Grants

Current

- Sponsor: National Science Foundation
Title: SCH: INT: Improving Care for Heart Failure Patients Using Tropical Geometry and Soft Computing
Amount: \$1,486,110
PI: Kayvan Najarian, Co-PIs: K. Aaronson, H. Derksen, J. Golbus, **Jonathan Gryak**
- Sponsor: Environmental Protection Agency
Title: SPRITE: Reducing Emissions through Applied Data Science (READS)
Amount: \$24,278
PI: H.V. Jagadish, Co-I: **Jonathan Gryak**
- Sponsor: National Science Foundation
A Fully-Automated Endoscopic Scoring System for Ulcerative Colitis
Amount: \$113,630
PI: Kayvan Najarian, Co-Is: Ryan Stidham, **Jonathan Gryak**
- Sponsor: National Institutes of Health
Title: Diabetic Foot Consortium - Clinical Research Unit
Amount: \$1,693,600
PI: Rodica Pop-Busui, Co-I: **Jonathan Gryak**
- Sponsor: National Science Foundation
Title: BIGDATA: F: Algorithms for Tensor-Based Modeling of Large Scale Structured Data
Amount: \$1,418,872
PI: Harm Derksen, Co-PIs: Timothy Cornell, Kayvan Najarian, Co-I: **Jonathan Gryak**
- Sponsor: Department of Defense
Title: A Multimodal Integrative Platform for Continuous Monitoring and Decision Support during Postoperative Care in Cardiac Patients
Amount: \$2,202,161
PI: Kayvan Najarian, Co-PIs: H. Alam, K. Ward, K. Gunnerson, H. Derksen, Co-I: **Jonathan Gryak**

Pending

- Sponsor: Department of Defense
Title: A Focused Program to Improve Early Diagnosis and Advanced Therapy Prediction for ARDS Using Integrated Computational Modeling
Amount: \$11,019,685
PI: Kayvan Najarian, Co-I: **Jonathan Gryak**

- Sponsor: National Science Foundation
Title: IUCRC Preliminary Proposal Planning Grant University of Michigan – Ann Arbor (U-M): Center for Secured Computation for Drug Discovery and Repurposing (SCDDR)
Amount: \$20,000
PI: Kayvan Najarian, Co-PIs: H.V. Jagadish, **Jonathan Gryak**
- Sponsor: National Science Foundation
Title: Collaborative Research: III: Medium: Scalable Algorithms for Generalized Coupled Data Completion
Amount: \$1,100,000
PI: Harm Derksen, Co-PIs: **Jonathan Gryak**, Kayvan Najarian

Professional Memberships

ACM, Association for Computing Machinery
AMS, American Mathematical Society
IEEE, Institute of Electrical and Electronics Engineers
SIAM, Society for Industrial and Applied Mathematics

Academic and Professional Service

Conference Organization

- Co-organizer of the IEEE International Conference of Bioinformatics and Biomedicine (BIBM 2019), Workshop on Applications of Machine Learning and Signal Processing in Biomedical Informatics and Computational Genomics (November 18-21, 2019), San Diego, CA
- Co-organizer of the American Mathematical Society Central Sectional Meeting, Special Session on Interactions between Algebra, Machine Learning and Data Privacy (October 20-21, 2018), University of Michigan, Ann Arbor, MI

University/Departmental Service

- Co-organizer of the MIDAS Health Sciences Data Challenge, Fall 2020
- Poster Judge, Michigan Institute for Data Science (MIDAS) Annual Symposium (November 10-11, 2020), University of Michigan, Ann Arbor
- Co-organizer of the Michigan Institute for Data Science (MIDAS) Annual Symposium (November 10-11, 2020), University of Michigan, Ann Arbor
- Faculty adviser for the student organization Michigan Eco Data, Spring 2020-Present
- Scientific review of MIDAS-DiDi Grant Proposals, Winter 2020
- Co-chaired MIDAS COVID-19 Mini-PODS Grant Proposal Review Panels, Winter 2020
- Organized the MIDAS Basketball Data Madness Challenge 2020, Winter 2020
- Co-chaired MIDAS PODS Grant Proposal Review Panels, Fall 2019

- Organized the MIDAS Fall Student Data Challenge with General Motors, JD Power, and Walter P. Moore
- Organized the MIDAS Deep Learning Workshops with Amazon and Google, Fall 2019
- Co-organizer of the Michigan Institute for Data Science (MIDAS) Annual Symposium (November 13-15, 2019), University of Michigan, Ann Arbor
- Poster Judge, Undergraduate Research Opportunity Program (UROP) Annual Spring Symposium, University of Michigan, Ann Arbor - Winter 2019
- Poster Judge, Undergraduate Research Opportunity Program (UROP) Annual Spring Symposium, University of Michigan, Ann Arbor - Winter 2018

Editorships

- Associate Editor, International Journal of Computer Mathematics: Computer Systems Theory, Taylor and Francis

Reviewer

- Referee for Clinical Autonomic Research
- Referee for Heart Rhythm Journal
- Referee for IEEE Access
- Referee for IMA International Conference on Cryptography and Coding 2019
- Referee for Machine Learning for Healthcare Conference 2017
- Referee for PLOS One
- Referee for Scientific Reports
- Referee for Sensors

Teaching

- EECS 498 Design Experience: AVs for Reducing Emissions Winter 2021
- EECS 498 Data Science Projects: READS Fall 2020
- BIOINF 501 Mathematical Foundations for Bioinformatics Fall 2020
- BIOINF 501 Mathematical Foundations for Bioinformatics Fall 2019
- BDSI 2019 Big Data Summer Institute: Data Mining Summer 2019
- BIOINF 501 Mathematical Foundations for Bioinformatics Fall 2018

Mentoring

Current

Postdoctoral Fellows

- Shuyang Cheng, University of Michigan, Ann Arbor
- Lu Wang, University of Michigan, Ann Arbor
- Gang Liu, University of Michigan, Ann Arbor

Graduate Students

- Winston Zhang, University of Michigan, Ann Arbor

Undergraduate Students

- Sion Kim, University of Michigan, Ann Arbor
- Justin Jan Liu, University of Michigan, Ann Arbor
- Julie Wang, University of Michigan, Ann Arbor

Past

Postdoctoral Fellows

- Maryam Bagherian, University of Michigan, Ann Arbor
- Alexander Wood, University of Michigan, Ann Arbor
- Elyas Sabeti, University of Michigan, Ann Arbor
- Mohsen Hooshmand, University of Michigan, Ann Arbor

Postgraduate Students

- Committee member of the Ph.D. Oral Exam in Computer Science CUNY Graduate Center, Kelsey Horan: *Polly Cracker Encryption Schemes*, February 2, 2018

Graduate Students

- Cheng Jiang, University of Michigan, Ann Arbor
- Can Cui, University of Michigan, Ann Arbor

Undergraduate Students

- Elijah Soba, University of Michigan, Ann Arbor
- Julia Pagnucco, University of Michigan, Ann Arbor
- Cheng Jiang, University of Michigan, Ann Arbor
- Megan Heydrick, UROP Student, University of Michigan, Ann Arbor
- Nicholas Kneupper, UROP Student, University of Michigan, Ann Arbor

Visiting Positions

- Institute Henri Poincaré, Paris, France. Nexus of Information and Computation Theories, Secrecy and Privacy Theme, March 21-25, 2016

Presentations

Invited Talks

- **2020 AMS Sectional Meeting**, Special Session on Combinatorics and Computing, *Solving Algebraic Problems in Algebraic Structures via Machine Learning*, October 3-4, 2020
- **EMBC 2019**, Pattern Detection and Classification in Cardiovascular Signals, *Markov Models for Detection of Ventricular Arrhythmia*, Berlin, Germany, July 23-27, 2019

- **EMBC 2019**, Image Analysis and Classification – Machine Learning Approaches, *Automated Detection of Non-Informative Frames for Colonoscopy*, Berlin, Germany, July 23-27, 2019
- **The Elementary Theory of Groups and Group Rings and Related Topics**, *Solving the Conjugacy Decision Problem via Machine Learning*, Fairfield University, November 1-2, 2018
- **ICMS 2018**, Session on Machine Learning for Mathematical Software, *Solving Algebraic Problems in Algebraic Structures via Machine Learning*, Notre Dame, July 24-27, 2018
- **ICMS 2018**, Session on Post-Quantum Group-Based Cryptography, *Cryptanalysis of Group-Theoretic Cryptosystems via Machine Learning*, Notre Dame, July 24-27, 2018
- **2018 AMS Sectional Meeting**, Special Session on Algorithmic Group Theory and Applications, *Solving the Conjugacy Decision Problem via Machine Learning*, Northeastern University, April 21, 2018
- **Algebra and Cryptography Seminar**, CUNY Graduate Center, New York, NY, *Solving the Conjugacy Decision Problem via Machine Learning*, February 2, 2018
- **2017 Mathematical Congress of the Americas**, Computations in Groups and Applications, *On the Conjugacy Problem in Certain Metabelian Groups*, McGill University, Montreal, Canada, July 28, 2017
- **2017 AMS Sectional Meeting**, Special Session on Cryptography, *On the Conjugacy Problem in Certain Metabelian Groups*, Hunter College, May 6, 2017
- **New York Area Theory Day**, New York University, *Non-Commutative Cryptography Using Polycyclic and Metabelian Groups*, December 2, 2016
- **2016 Zassenhaus Group Theory Conference**, Adelphi University, *On the Conjugacy Problem in Certain Metabelian Groups*, June 11, 2016
- **2015 Joint International Meeting of AMS, EMS, and SPM**, Special Session on Algebra and Computer Science, Porto, Portugal, *Conjugacy Problem in Polycyclic and Metabelian Groups: Algorithms and Complexity*, June 12, 2015

Poster Presentations

- **EMBC 2019**, Image Registration, Segmentation, Compression and Visualization – Machine Learning / Deep Learning Approaches, *Diabetic Wound Segmentation using Convolutional Neural Networks*, Berlin, Germany, July 23-27, 2019
- **AHA Scientific Session 2018**, *Fully-Automated Left Ventricle Segmentation Using a Dilated and Adversarial Deep Learning Architecture*, November 10, 2018
- **2018 Military Health System Research Symposium**, *Automated Decision Support System for Stenosis Detection in Coronary Angiograms*, August 21, 2018

Patents and Patent Applications

- Sequential Minimal Optimization Process for Learning Using Partially Available Privileged Information Techniques
Application No: US20200250496A1
Type: Application
Published: August 6, 2020
Inventors: Kayvan Najarian, **Jonathan Gryak**, Elyas Sabeti, Joshua Drews
- Automated Anatomic and Regional Location of Disease Features in Colonoscopy Videos
Application No: 16/875,357
Type: Application
Filed: May 15, 2020
Inventors: Kayvan Najarian, Heming Yao, Reza Soroushmehr, **Jonathan Gryak**, Ryan Stidham
- Tensor Amplification-Based Data Processing
Type: Provisional
Filed: February 05, 2020
Inventors: Harm Derksen, Neriman Tokcan, Kayvan Najarian, **Jonathan Gryak**
- Systems and Methods for Predicting and Detecting a Cardiac Event
Patent No: 10,463,314
Type: Grant
Filed: July 19, 2018
Publication Date: November 5, 2019
Inventors: Kayvan Najarian, Harm Derksen, Zhi Li, **Jonathan Gryak**, Pujitha Gunaratne
- Automatic Filter Pruning Technique for Convolutional Neural Networks
Application No: US20190294929A1
Type: Application
Published: September 26, 2019
Inventors: Heming Yao, Kayvan Najarian, **Jonathan Gryak**
- Automated Optic Nerve Sheath Diameter Measurement
Application No: 62/877,539
Type: Provisional
Filed: July 23, 2019
Inventors: Reza Soroushmehr, Kayvan Najarian, Venkatakrisna Rajajee, Kevin Ward, **Jonathan Gryak**, Craig A. Williamson, Mohamad H. Tiba

Bibliography

Journal Articles

- N. Reamaroon, M.Sjoding, H. Derksen, E. Sabeti, **J. Gryak**, R. Barbaro, B. Athey, K. Najarian, *Robust Segmentation of Lung in Chest X-Ray: Applications in Analysis of Acute Respiratory Distress Syndrome*, BMC Medical Imaging (2020)

- R.B. Kim, **J. Gryak**, A. Mishra, C. Cui, S.M.R. Soroushmehr, K. Najarian, J. S. Wrobel, *Utilization of Smartphone and Tablet Camera Photographs to Predict Healing of Diabetes-related Foot Ulcers*, Computers in Biology and Medicine (2020)
- N. Farzaneh, C. Williamson, C. Jiang, A. Srinivasan, J.R. Bapuraj, **J. Gryak**, K. Najarian, and S.M.R. Soroushmehr, *Automated Segmentation and Severity Analysis of Subdural Hematoma for Patients with Traumatic Brain Injuries*, Diagnostics (2020)
- Z. Li, H. Derksen, **J. Gryak**, C. Jiang, Z. Gao, W. Zhang, H. Ghanbari, P. Gunaratne, and K. Najarian, *Prediction of Cardiac Arrhythmia using Deterministic Probabilistic Finite-State Automata*, Biomedical Signal Processing and Control (2020)
- V. Rajajee, S.M.R. Soroushmehr, C. Williamson, K. Najarian, **J. Gryak**, A. Awad, K. Ward, M.H. Tiba, *Novel Algorithm for Automated Optic Nerve Sheath Diameter Measurement Using a Clustering Approach*, Military Medicine (2020)
- H. Yao, K. Najarian, **J. Gryak**, S. Bishu, M.D. Rice, A.K. Waljee, H.J. Wilkins, R.W. Stidham, *Fully Automated Endoscopic Disease Activity Assessment in Ulcerative Colitis: Advancements and Remaining Challenges*, Gastrointestinal Endoscopy (2020)
- N. Tokcan, **J. Gryak**, K. Najarian, H. Derksen, *Algebraic Methods for Tensor Data*, to appear in SIAM Journal on Applied Algebra and Geometry (SIAGA)
- E. Sabeti, J. Drews, N. Reamaroon, E. Warner, M. Sjoding, **J. Gryak**, K. Najarian, *Learning Using Partially Available Privileged Information and Label Uncertainty: Application in Detection of Acute Respiratory Distress Syndrome*, IEEE Journal of Biomedical Health Informatics (2020)
- H. Yao, C. Williamson, **J. Gryak**, K. Najarian, *Automated Hematoma Segmentation and Outcome Prediction for Patients with Traumatic Brain Injury*, Artificial Intelligence in Medicine, Volume 107 (2020)
- E. Sabeti, N. Reamaroon, M. Mathis, **J. Gryak**, M. Sjoding, and K. Najarian, *Signal Quality Measure for Pulsatile Physiological Signals using Morphological Features: Applications in Reliability Measure for Pulse Oximetry*, Informatics in Medicine Unlocked, Volume 16 (2019)
- E. Sabeti, **J. Gryak**, H. Derksen, C. Biwer, S. Ansari, H. Isenstein, A. Kratz, K. Najarian, *Learning Using Concave and Convex Kernels: Applications in Predicting Quality of Sleep and Level of Fatigue in Fibromyalgia Sufferers*, Entropy, Volume 21, Issue 5 (2019)
- **J. Gryak**, D. Kahrobaei, C. Martinez-Perez, *On The Conjugacy Problem In Certain Metabelian Groups*, Glasgow Mathematical Journal, Cambridge University Press (2018)
- **J. Gryak**, R. Haralick, D. Kahrobaei, *Solving the Conjugacy Decision Problem via Machine Learning*, Experimental Mathematics, Taylor and Francis (2018)

- **J. Gryak**, D. Kahrobaei, *The Status Of Polycyclic Group-Based Cryptography: A Survey And Open Problems*, Groups, Complexity, Cryptology, De Gruyter, Volume **8**, Issue 2, 171–186 (2016)

Peer-Reviewed Conference Papers

- S. Brosset, M. Dumont, J. Bianchi, A. Ruellas, L. Cevidanes, M. Yatabe, J. Gonçalves, E. Benavides, F.N. Soki, B. Paniagua, J. Prieto, K. Najarian, **J. Gryak**, S.M.R. Soroushmehr, *3D Auto-Segmentation of Mandibular Condyles*, Conf Proc IEEE Eng Med Biol Soc. 2020 Jul.
- O. Alge, **J. Gryak**, A. Kratz, K. Najarian, *Predicting Poor Sleep Quality in Fibromyalgia with Wrist Sensors*, Conf Proc IEEE Eng Med Biol Soc. 2020 Jul.
- O. Alge, L. Lu, Z. Li, Y. Hua, **J. Gryak**, K. Najarian, *Automated Classification of Osteosarcoma and Benign Tumors using RNA-seq and Plain X-ray*, Conf Proc IEEE Eng Med Biol Soc. 2020 Jul.
- H. Yao, K. Aaronson, L. Lu, **J. Gryak**, K. Najarian, J. Golbus, *Using Fuzzy Neural Networks in Clinical Decision Support for Patients with Advanced Heart Failure*, 2019 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)
- C. Jiang, J. Cao., C. Williamson, V. Rajajee, **J. Gryak**, K. Najarian, S.M.R. Soroushmehr, *Midline Shift vs. Mid-Surface Shift: Correlation with Outcome of Traumatic Brain Injuries*, 2019 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)
- S.M.R. Soroushmehr, V. Rajajee, C. Williamson, **J. Gryak**, K. Najarian, K. Ward, M.H. Tiba, *Automated Optic Nerve Sheath Diameter Measurement Using Super-pixel Analysis*, Conf Proc IEEE Eng Med Biol Soc. 2019 Jul.
- H. Yao, R. Stidham, S.M.R. Soroushmehr, **J. Gryak**, K. Najarian, *Automated Detection of Non-Informative Frames for Colonoscopy Through a Combination of Deep Learning and Feature Extraction*, Conf Proc IEEE Eng Med Biol Soc. 2019 Jul.
- Z. Li, H. Derksen, **J. Gryak**, M. Hooshmand, A. Wood, H. Ghanbari, P. Gunaratne, K. Najarian, *Markov Models for Detection of Ventricular Arrhythmia*, Conf Proc IEEE Eng Med Biol Soc. 2019 Jul.
- E. Sabeti, J. Drews, N. Reamaroon, **J. Gryak** M. Sjoding, K. Najarian, *Detection Of Acute Respiratory Distress Syndrome By Incorporation Of Label Uncertainty And Partially Available Privileged Information*, Conf Proc IEEE Eng Med Biol Soc. 2019 Jul.
- C. Cui, K. Thurnhofer-Hemsi, S.M.R. Soroushmehr, A. Mishra, **J. Gryak**, E. Domínguez, J. Wrobel, K. Najarian, E. López-Rubio, *Diabetic Wounds Segmentation Using Convolutional Neural Networks*, Conf Proc IEEE Eng Med Biol Soc. 2019 Jul.
- B. Ghazanfari, F. Afghah, K. Najarian, S. Mousavi, **J. Gryak**, J. Todd, *An Unsupervised Feature Learning Approach to Reduce False Alarm Rate in ICUs*, Conf Proc IEEE Eng Med Biol Soc. 2019 Jul.

- Z. Li, H. Derksen, **J. Gryak**, M. Hooshmand, A. Wood, H. Ghanbari, P. Gunaratne, K. Najarian, *Supraventricular Tachycardia Detection via Machine Learning Algorithms*, 2018 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)
- O. Alge, **J. Gryak**, K. Najarian, *Classifying Osteosarcoma Using Meta-Analysis of Gene Expression*, 2018 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)
- Z. Li, H. Derksen, **J. Gryak**, H. Ghanbari, P. Gunaratne, K. Najarian, *Atrial Fibrillation Prediction using Recordings from Portable Devices*, Conf Proc IEEE Eng Med Biol Soc. 2018 Jul.
- S. Ansari, **J. Gryak**, K. Najarian, *Noise Detection in Electrocardiography Signal for Robust Heart Rate Variability Analysis: A Deep Learning Approach*, Conf Proc IEEE Eng Med Biol Soc. 2018 Jul.
- A. Nguyen, S. Ansari, M. Hooshmand, K. Lin, H. Ghanbari, **J. Gryak**, K. Najarian, *Comparative Study on Heart Rate Variability Analysis for Atrial Fibrillation Detection in Short Single-Lead ECG Recordings*, Conf Proc IEEE Eng Med Biol Soc. 2018 Jul.
- H. Yao, W. Zhang, R. Malhan, **J. Gryak**, K. Najarian, *Filter-Pruned 3D Convolutional Neural Network for Drowsiness Detection*, Conf Proc IEEE Eng Med Biol Soc. 2018 Jul.
- H. Yao, C. Williamson, S.M.R. Soroushmehr, **J. Gryak**, K. Najarian, *Hematoma Segmentation Using Dilated Convolutional Neural Network*, Conf Proc IEEE Eng Med Biol Soc. 2018 Jul.
- M. Hooshmand, S.M.R. Soroushmehr, C. Williamson, **J. Gryak**, K. Najarian, *Automatic Midline Shift Detection in Traumatic Brain Injury*, Conf Proc IEEE Eng Med Biol Soc. 2018 Jul.
- N. Farzaneh, S.M.R. Soroushmehr, H. Patel, A. Wood, **J. Gryak**, D. Fessell, K. Najarian, *Automated Kidney Segmentation for Traumatic Injured Patients through Ensemble Learning and Active Contour Modeling*, Conf Proc IEEE Eng Med Biol Soc. 2018 Jul.
- A. Wood, S.M.R. Soroushmehr, N. Farzaneh, K. Ward, D. Fessell, **J. Gryak**, K. Najarian, *Fully Automated Spleen Localization and Segmentation Using Machine Learning and 3D Active Contours*, Conf Proc IEEE Eng Med Biol Soc. 2018 Jul.
- R. Shen, Z. Li, L. Zhang, Y. Hua, M. Mao, Z. Li, Z. Cai, Y. Qiu, **J. Gryak**, K. Najarian, *Osteosarcoma Patients Classification Using Plain X-Rays and Metabolomic Data*, Conf Proc IEEE Eng Med Biol Soc. 2018 Jul.

Book Chapters

- M. Dumont, J. Prieto, S. Brosset, L. Cevidanes, J. Bianchi, A. Ruellas, M. Gurgel, C. Massaro, K. Najarian, **J. Gryak**, M. Styner, J. Fillion-Robin, B. Paniagua, S.M.R. Soroushmehr, *Patient Specific Classification of Dental Root Canal and Crown Shape*, International Workshop on Shape in Medical Imaging 2020, Lecture Notes in Computer Science, Volume 12474

- H. Yao, C. Williamson, **J. Gryak**, K. Najarian, *Brain Hematoma Segmentation Using Active Learning and an Active Contour Model*, International Work-Conference on Bioinformatics and Biomedical Engineering (IWBBIO) 2019, Lecture Notes in Computer Science, Volume 11466
- A. Gribov, K. Horan, **J. Gryak**, K. Najarian, V. Shpilrain, S.M.R. Soroushmehr, D. Kahrobaei, *Medical Diagnostics Based on Encrypted Medical Data*, Bio-inspired Information and Communication Technologies 2019, Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, Volume 289

Abstracts

- R. Stidham, H. Yao, S. Bishu, M. Rice, J. Gryak, H.J. Wilkins, K. Najarian, *Feasibility and performance of a fully automated endoscopic disease severity grading tool for ulcerative colitis using unaltered multisite videos*, 15th Congress of ECCO - European Crohn's and Colitis Organisation, February 2020
- S.M.R. Soroushmehr, N. Curzen, A. Wood, B. Nallamotheu, **J. Gryak**, K. Najarian, *Automated Decision Support System for Stenosis Detection in Coronary Angiograms*, 2018 Military Health System Research Symposium
- N. Tokcan, L. Hernandez, H. Derksen, **J. Gryak**, K. Najarian, *Novel Tensor Similarity Score for Classification of Cardiac Index from ECG Signals*, 2018 Military Health System Research Symposium
- S.M.R. Soroushmehr, C. Williamson, **J. Gryak**, K. Najarian, *Computing Amount of Midline Shift in Traumatic Brain Injury*, 2018 Military Health System Research Symposium
- H. Yao, **J. Gryak**, H. Derksen, A.K. Attili, B. Nallamotheu, K. Najarian, *Fully-Automated Left Ventricle Segmentation Using a Dilated and Adversarial Deep Learning Architecture*, AHA Scientific Sessions 2018
- S. Ansari, J. Golbus, K. Aaronson, B. Nallamotheu, K. Oldham, K. Ward, **J. Gryak**, K. Najarian, *Stratification of Cardiac Index using a Novel Non-invasive Ring and Deep Learning*, AHA Scientific Sessions 2018

Dissertation

- **J. Gryak**, *Solving Algorithmic Problems in Finitely Presented Groups via Machine Learning*, City University of New York, April 2017

Submitted Articles

- N. Reamaroon, M.Sjoding, **J. Gryak**, B. Athey, K. Najarian, H. Derksen, *Automated Detection of Acute Respiratory Distress Syndrome from Chest X-Rays Using Directional Blur and Deep Learning Features*, Submitted
- N. Farzaneh, C. Williamson, **J. Gryak**, K. Najarian, *A Hierarchical Expert-Guided Machine Learning Framework for Clinical Decision Support Systems: An Application to Traumatic Brain Injury Prognostication*, Under Review
- H. Yao, R. Stidham, **J. Gryak**, K. Najarian, *Motion-based Camera Localization System in Colonoscopy Videos*, Submitted

- K. Wheelock, S. Lathkar-Pradhan, A. Kratz, K. Najarian, **J. Gryak**, Z. Li, H. Oral, D. Clauw, B. Nallamotheu, H. Ghanbari, *Predicting Symptoms in Patients with Persistent or Paroxysmal Atrial Fibrillation: An Ambulatory Pilot Study*, Submitted
- Z. Gao, M. W. Sjoding, **J. Gryak**, K. Najarian, *Machine Learning Based Detection of Acute Respiratory Distress Syndrome using Electronic Health Records*, Submitted
- C. Minoccheri, O. Alge, **J. Gryak**, K. Najarian, H. Derksen, *Multilinear Discriminant Analysis via Kempf-Ness Theory for Tensorial Data Classification*, Under Review
- L. Hernandez, R.B. Kim, N. Tokcan, H. Derksen, B.E. Biesterveld, A. Croteau, A.M. Williams, M. Mathis, K. Najarian, **J. Gryak**, *Multimodal Tensor-Based Method for Integrative and Continuous Patient Monitoring During Postoperative Care*, Under Review

References

- Professor Kayvan Najarian, Departments of Computational Medicine and Bioinformatics, Emergency Medicine, and Computer Science and Engineering, University of Michigan, Ann Arbor
- Professor Harm Derksen, Department of Mathematics, Northeastern University
- Professor Robert M. Haralick, Distinguished Professor of Computer Science, CUNY Graduate Center
- Professor Delaram Kahrobaei, Chair of Cyber Security University of York (UK), Adjunct Professor of Computer Science, NYU, Doctoral Faculty of Computer Science, CUNY Graduate Center
- Professor Benjamin Fine, Department of Mathematics, Fairfield University