Jiheum Park, PhD
622 West 168th St
New York, NY 10032
jp4147@cumc.columbia.edu

ACADEMIC APPOINTMENTS

05/2024 – present	**James J. Peters VA Medical Center** Research Scientist (WOC) Hematology/Oncology Fellow	Bronx, NY
03/2024 – present	**Columbia University** Assistant Professor at CUMC	New York, NY
03/2023 – 03/2024	**Columbia University** Instructor at CUMC	New York, NY
09/2021 – 3/2023	**Columbia University** Associate Research Scientist at CUMC	New York, NY
09/2020 – 09/2021	**Columbia University** Postdoctoral Research Scientist at CUMC	New York, NY
02/2017– 06/2020	**Yale University** Postdoctoral Associate in Medicine	New York, NY

EDUCATION

03/2012 – 02/2017	**Seoul National University, College of Engineering** PhD in Biomedical Engineering, Feb 2017	New York, NY
08/2007 – 05/2011	**Cornell University, College of Engineering** BS in Mechanical Engineering, May 2011	New York, NY

HONORS AND AWARDS

- Finalist at the Yale Innovation Summit Tech Pitch Contest (2019)
    - Transcatheter Mitral Valve Repair System, PAP-VR
- Finalist at the Yale Innovation Summit Tech Pitch Contest (2018)
    - Novel Cardiac Device Bridges Critical Treatment Gap, CoRISMA
- Global PhD Fellowship (2012-2017)
    - Core Talent Training Business by National Research Foundation of Korea
- ASAIO Y Nose' International Fellowship (2016)
    - *In-Vitro* Evaluation of Drug Sequestration in ECMO Circuit
- Excellence Poster Award (2015)
    - Computational Simulation of Passive Leg Raising Effects on CPR

- Excellence Poster Award (2014)
    - Nail-fold Capillary Blood Flow Rate Measurement System
- Best Paper Award (2012) – The Korean Society of Medical & Biological Engineering
    - Organomimetic Microsystems Technologies

PROFESSIONAL ORGANIZATIONS AND SOCIETIES

- Reviewer for NIH's Center for Scientific Review (CSR) Special Emphasis Panel (SEP)
- MCS/VAD University Assistant Chair, ASAIO program committee
- Invited reviewer for Journal of Micromechanics and Microengineering
- Member, International Society for Heart and Lung Transplantation (ISHLT)
- Member, Certificate of College Teaching Preparation (CCTP), Yale University
- Reviewer for American Society for Artificial Internal Organs (ASAIO) journal
- Member, Center for Engineering Innovation & Design (CEID), Yale University
- Member, American Society for Artificial Internal Organs (ASAIOfyi)
- Member, Institute of Electrical and Electronics Engineers (IEEE)

FELLOWSHIP AND GRANT SUPPORT

Current

Status of Support	Active
Grant Number	PA240089
Agency	DoD
Title	Enhancing Early Detection of Pancreatic Cancer Using GPT-Embedded EHR Models: A Novel Approach for Improved Predictive Performance and Interpretability
P.I.	Park, J.
Total costs	$1,063,983
Project period	08/01/2025 - 07/31/2028

Status of Support	Active
Grant Number	1K25CA267052-01
Agency	NIH
Title	Early Detection of Pancreatic Cancer with Human-in-the-Loop Deep Learning
P.I.	Park, J.
Total costs	$893,050
Project period	05/01/2023-04/30/2028

Past

Status of Support	Completed
Grant Number	1R21CA265400-01
Agency	NCI
Title	Domain-Knowledge Informed Deep Learning for Early Detection of Pancreatic Cancer
P.I.	Hur, C. (contact PI), Tatonetti, N.
Role	Co-I
Total costs	$432,170
Project period	07/01/2021-06/30/2023

Status of Support	Completed
Grant Number	Global Ph. D. Fellowship
Agency	National Research Foundation of Korea
Title	Hydrodynamic trap-and-release of microparticles using hydraulic jump phenomenon
P.I.	Park, J.
Total costs	$115,526
Project period	03/01/2012-02/28/2017

EDUCATIONAL CONTRIBUTIONS

Period	2019 Oct – 2020 Jan
Name of trainee:	Andrea Guadalupe Sanchez Aguilar
Position	Postgraduate Associate
Research project:	▪ Biologically inspired, Open, Helicoid (BiO-H) Impeller Design Application to Sepsis

Period	2019 Sep – 2020 June, 2018 June – 2018 Aug
Name of trainee:	Rachel Madore
Position	Undergraduate Research Assistant
Research project:	▪ Artificial Intelligence Application: Trends and retention patterns of healthcare workers ▪ Magnetic Graft Design for Type A Aortic Dissection

Period	2018 July – 2018 Aug
Name of trainee:	Riya Kapur
Position	Research Assistant (High school student)
Research project:	▪ Locking/Unlocking Valve Design based on Retractable Pen Mechanism

Period	2017 Feb – 2017 Oct
Name of trainee:	Zeynep Tuzun
Position	Postgraduate Associate
Research project:	▪ Mitral Valve Model based on Electromechanical Papillary Muscle Robotic Archetype

Period	2017 Jul – 2017 Aug
Name of trainee:	Khaled Jarad
Position	Research Assistant (High school student)
Research project:	▪ Aortic Stent and Phantom Modeling

Period	2017 Jul – 2017 Aug
Name of trainee:	Saumya Shah
Position	Research Assistant (High school student)
Research project:	▪ Transcatheter Adhesive Delivery System

REPORT OF CLINICAL AND PUBLIC HEALTH ACTIVITIES AND INNOVATIONS

PATENTS & INVENTIONS

Lee JC, **Park J**, Kim HC, Park JY, Lee GH, "Microchip for Cell Spheroid Fabrication, Cell Spheroid Fabrication Apparatus Including the Same, and Cell Spheroid Fabrication Method", Korean Patent Registration No. 10-2016-0030545 (March 14, 2016)

PREPRINT

1. **Park J**, Pang C, Lee T, Berkowitz J, Wei A, Hur C, Tatonetti N. Toward Scalable Early Cancer Detection: Evaluating EHR-Based Predictive Models Against Traditional Screening Criteria. Under review in *Nature Communication*. https://arxiv.org/abs/2511.11293
2. Pang C, **Park J**, Jiang X, Pavinkurve NP, Kalluri KS, Joshi S, Elhadad N, Natarajan K. CEHR-XGPT: A Scalable Multi-Task Foundation Model for Electronic Health Records. arXiv preprint arXiv:2509.03643. 2025 Sep 3.

PUBLICATIONS

1. Kneifati-Hayek JZ, Peabody I, Elias J, **Park J**, Gu T, Weintraub J, Kang S, Hentel K, Fertel B, Adelman JS, Baillie C. Diagnostic Imaging Orders Canceled by Radiology: A Study of Over 7 Million Orders From a Single Health System. American Journal of Roentgenology. 2025 Sep 17. PMID: 40960246
2. Yang JY, **Park J**, Pang C, Huang RJ, Camargo MC, Hur C. Underreporting of Gastric Intestinal Metaplasia Due to Underutilization of Diagnostic Codes. Gastro Hep Advances. 2025 Sep 1:100789.
3. **Park J**, Shue S, Zhang D. Genetic Associations in Non-Europeans with Pulmonary Fibrosis: Analysis of the All of Us Cohort. *Am J Respir Crit Care Med*, 2025 Aug 13. PMID: 40802651
4. **Park J**, Patterson J, Acitores Cortina JM, Gu T, Hur C, Tatonetti N. Enhancing EHR-based pancreatic cancer prediction with LLM-derived embeddings. *npj Digital Medicine*. 2025 Jul 21;8(1):465. PMCID: PMC12280092
5. **Park J**, Karnati K, Prest M, Rustgi SD, Hur C, Kong XF, Kastrinos F. Impact of Population Screening for Lynch Syndrome: Insights from the All of Us Data. *Nature Communications.* 2025 Jan 9;16(1):523
6. **Park J**, Lim F, Prest M, Ferris J, Aziz Z, Agyekum A, Wagner S, Gulati R, Hur C. Quantifying the potential benefits of early detection for pancreatic cancer: results of a counterfactual simulation modeling analysis. *Scientific Reports*. 2023 Nov 16;13(1):20028.
7. **Park J**, Artin MG, Lee KE, May BL, Park M, Hur C, Tatonetti NP. Structured deep embedding model to generate composite clinical indices from electronic health records for early detection of pancreatic cancer. *Patterns*. 2022 Dec 6:100636.
8. **Park J**, Artin MG, Lee KE, Pumpalova YS, Ingram MA, May BL, Park M, Hur C, Tatonetti NP. Deep learning on time series laboratory test results from electronic health records for early detection of pancreatic cancer. *Journal of Biomedical Informatics*. 2022 May, 20:104095
9. **Park J** and Bonde PN. Machine Learning in Cardiac Surgery: Predicting Mortality and Readmission. *American Society for Artificial Internal Organs.* 2022 May. pp. 10-1097
10. Zheng B, Artin MG, Chung H, Bing C, Sun S, May BL, Hur C, Green PH, Wang TC, **Park J**, Kong XF. Immunogenetics of gastrointestinal cancers: A systematic review and retrospective survey of inborn errors of immunity in humans. *Journal of Gastroenterology and Hepatology*. 2022 Apr 5.
11. Ingram MA, Lauren BN, Pumpalova Y, **Park J**, Lim F, Bates S, Kastrinos F. Manji GA, Kong CY, Hur C. Cost-effectiveness of neoadjuvant FOLFIRINOX vs gemcitabine plus nab-paclitaxel in borderline resectable/locally advanced pancreatic cancer patients. *Cancer Reports*, 2021 Sep 21. doi: 10.1002/cnr2.1565

12. Stawiarski K, Olayinka A, **Park J**, Mangi AA, Geirsson A, Jacoby D, Chen M, Bellumkonda L, Ahmad T, Testani JM, Chou J, Lee F, Bonde PN. Impact of Preoperative Lymphopenia on Survival Following Left Ventricular Assit Device Placement. *American Society for Artificial Internal Organs*. 2020 Oct 14

13. **Park J**, Oki K, Hesselmann F, Geirsson A, Kaufmann T, Bonde P. Biologically Inspired, Open, Helicoid Impeller Design for Mechanical Circulatory Assist. *American Society for Artificial Internal Organs*. 2019 Oct 23. doi: 10.1097/MAT.0000000000001090

14. Bouwmeester JC, **Park J**, Valdovinos J, Bonde P. Wave intensity analysis of right ventricular function during pulsed operation of rotary left ventricular assist devices. *American Society for Artificial Internal Organs*. 2019 Jul 1;65(5):465-72.

15. Bouwmeester JC, **Park J**, Geirsson A, Valdovinos J, Bonde P. Quantification of Pulsed Operation of Rotary Left Ventricular Assist Devices with Wave Intensity Analysis. *American Society for Artificial Internal Organs*. 2019 May 1;65(4):324-30.

16. **Park J**, Geirsson A, Bonde PN. Mathematical Blueprint of a Mitral Valve. *Seminars in thoracic and cardiovascular surgery*. 2019 Jan 8;31(3):399-411.

17. Waters BH[†]., **Park J**[†]., Bouwmeester JC, Valdovinos J, Geirsson A, Sample AP, Smith JR, Bonde P*. Electrical power to run ventricular assist devices using the Free-range Resonant Electrical Energy Delivery system. *The Journal of Heart and Lung Transplantation*. 2018 Dec 1;37(12):1467-74 ([†]These authors contributed equally to this work.)

18. Letzen B, **Park J**, Tuzun Z, Bonde P. Design and Development of a Miniaturized Percutaneously Deployable Wireless Left Ventricular Assist Device: Early Prototypes and Feasibility Testing. *American Society for Artificial Internal Organs*. 2018 Mar 1;64(2):147-53.

19. **Park J**[†], Lee GH[†], Park JY, Lee JC, Kim HC. Hypergravity-induced Multicellular Spheroid Generation with Different Morphological Patterns Precisely Controlled on a Centrifugal Microfluidic Platform. *Biofabrication*. 2017 Nov 14;9(4):045006. ([†]These authors contributed equally to this work.)

20. Jung JY, Kwak YH, Kwon H, Choi YJ, Kim DK, Kim HC, Lee JC, **Park J**, Lim H. Effectiveness of Finger-marker for Maintaining the Correct Compression Point During Pediatric Resuscitation: A Simulation Study. *The American journal of emergency medicine*. 2017 Sep 1;35(9):1303-8.

21. **Park J**, Shin DA, Lee S, Cho YJ, Jheon S, Lee JC, Kim HC. Investigation of Key Circuit Constituents Affecting Drug Sequestration During Extracorporeal Membrane Oxygenation Treatment. *American Society for Artificial Internal Organs.* 2017 May 1;63(3):293-8.

22. Shin DA[†], **Park J**[†], Lee JC, Do Shin S, Kim HC. Computational Simulation of Passive Leg-Raising Effects on Hemodynamics During Cardiopulmonary Resuscitation. *Computer methods and programs in biomedicine*. 2017 Mar 1;140:195-200. ([†]These authors contributed equally to this work.)

23. **Park J**, Lee GH, Park JY, Lee JC, Kim HC. A Numerical Study of the Coriolis Effect in Centrifugal Microfluidics with Different Channel Arrangements. *Microfluidics and Nanofluidics*. 2016 Apr 1;20(4):65.

24. **Park J**, Yoon C, Lee JC, Jung JY, Kim DK, Kwak YH, Kim HC. Manikin-integrated Digital Measuring System for Assessment of Infant Cardiopulmonary Resuscitation Techniques. *IEEE journal of biomedical and health informatics*. 2014 Sep;18(5):1659-67.

25. **Park J**, Kim KB, Lee J, Kim HC, Huh D. Organomimetic Microsystems Technologies. *Biomedical Engineering Letters*. 2012 Jun 1;2(2):88-94.

BOOKS/TEXTBOOKS FOR MEDICAL OR SCIENTIFIC COMMUNITY
1. Valdovinos, J., **Park, J**., Smith, J., & Bonde, P. Progress on Wireless LVAD and Energy Sources for Mechanical Circulatory Systems. *Mechanical Support for Heart Failure*, 2020, page 609-620.

MEETINGS/INVITED ORAL AND POSTER PRESETNATIONS

1. **Park J**, Shue S, Lim F, Prest M, Ferris J, Yang JY, Hur C. Achieving the Goal of Reducing Cancer Mortality by 50% Through Early Detection: Insights from Simulation Modeling of Multi-Cancer Screenings. *2025 AACR Annual Meeting,* April 25-30.
2. **Park J**, Karnati H, Rustgi S, Hur C, Kong XF, Kastrinos F. Population screening for Lynch syndrome: insights from the All of Us Research Program. *2024 Digestive Disease Week,* May 18-21.
3. **Park J**, Patterson J, Hur C, Tatonetti NP. Early Detection of Pancreatic Cancer: A Knowledge Graph-Based Approach Using EHR Data. *2024 The Symposium on Artificial Intelligence for Learning Health Systems*, May 7-10.
4. Ingram M, Pumpalova YS, **Park J**, Lim F, Manji GA, Kong CY, Hur C. Cost-effectiveness analysis of platinum-based chemotherapy treatment options for germline BRCA-mutated locally advanced/borderline resectable pancreatic cancer. *2021 ASCO Annual Meeting*, e16246-e16246.
5. **Park J** and Bonde P. Automated Hypothermic Circulatory System For Deep Space Travel. *66th Annual Conference of the American Society for Artificial Internal Organs, Chicaco, IL, June 10-13, 2020*
6. **Park J**, Geirsson A, Mangi AA, Darr U, Elefteriades JA, Dewar ML, Bonde P. Predicting Mortality and Readmissions after Cardiac Surgery by Artificial Intelligence. *100th Annual Conference of the American Association for Thoracic Surgery, New York, NY April 25-28, 2020; Session: Innovations in CABG*
7. **Park J,** Bonde P, Geirsson A. Endovascular Cavo-Pulmonary Right Ventricular Assist Device. *65th Annual Conference of the American Society for Artificial Internal Organs, San Francisco, CA June 26-29, 2019; Abstract 297*
8. **Park J,** Bonde P, Geirsson A. Endovascular Reconstitution of Aortic Sinotubular (eRAS) Junction for Type A Dissection. *65th Annual Conference of the American Society for Artificial Internal Organs, San Francisco, CA June 26-29, 2019; Abstract 300*
9. **Park J,** Bonde P, Geirsson A. Trans Catheter, Durable, Bio-Mimetic, Wireless-less Left Ventricular Assist Device for End Stage Heart Failure. *65th Annual Conference of the American Society for Artificial Internal Organs, San Francisco, CA June 26-29, 2019; Abstract 298*
10. **Park J**, Geirsson A, Bonde P. Direct Cavo-Pulmonary Stent Mounted Right Ventricular Assist Device. *International Society for Heart & Lung Transplantation 39th Annual Meeting & Scientific Sessions, Orlando, FL, April 3-6, 2019; Abstract 560*
11. **Park J**, Geirsson A, Bonde P. Trans-Catheter Septal Myectomy for Hypertrophic Cardiomyopathy: Results From an Innovative Design and Testing. *American Heart Association Scientific Sessions, Chicago, IL, November 10-12, 2018*: Control Number: 14611
12. **Park J**, Geirsson A, Bonde P. In-Vivo Validation of Totally Implantable Ventricular Assist Device Support Using Contactless Wireless Power. *64th Annual Conference of the American Society for Artificial Internal Organs, Washington, DC, June 13-16, 2018; ASAIO Journal, 64, S90: Abstract 306*
13. **Park J**, Bonde P. A Computational Study of Papillary Muscle 3D Kinematics to Evaluate Mitral Valve Motion. *13th Annual Academic Surgical Congress, Jacksonville, FL, January 30-February 1, 2018*
14. **Park J**, Bonde P. An Endovascular, Totally Implantable Cardiac Support Device for early Class III Heart Failure. *13th Annual Academic Surgical Congress, Jacksonville, FL, January 30-February 1, 2018*
15. **Park J**, Shin DA, Shin HA, Lee JS, Kim H, Jheon S, Lee JC, Kim HC. Hemolytic Characteristics of the Centrifugal Blood Pump Developed for Multi-purpose Extracorporeal Circulation System. *4th Annual Conference of the Asian-Pacific Society for Artificial Organs, Tianjin, China, August 27th, 2016*
16. **Park J**, Shin DA, Lee JC, Kim HC. In-vitro Evaluation of Drug Sequestration in the Extracorporeal Membrane Oxygenation (ECMO) Circuit. *62th Annual Conference of the American Society for Artificial Internal Organs, San Francisco, CA, June 15-18, 2016*
17. **Park J**, Shin DA, Lee JS, Shin MC, Lee JC, Kim HC. Development of a Smart All-in-one Cardiopulmonary Support System: Preliminary Performance of Pump Driver and Control unit on a Mock Circulation Loop. *52th International Biomedical Engineering Conference, Gyeongju, Korea, November 12-14, 2015*

18. Shin DA, **Park J**, Kim HC, Lee JC. Computational simulation of passive leg raising effects on hemodynamics during cardiopulmonary resuscitation. *52th International Biomedical Engineering Conference, Gyeongju, Korea, November 12-14, 2015*

19. **Park J**, Yoon C, Jung JY, Kim DK, Kwak YH, Lee JC, Kim HC. Accuracy Assessment of Different Finger Placements for Cardiopulmonary Resuscitation on Infants. *IEEE-EMBS International Conferences on Biomedical and Health Informatics, Valencia, Spain, June 1-4, 2014*