Stanford

Prasanth Ganesan

Basic Life Research Scientist, Medicine - Med/Cardiovascular Medicine

NIH Biosketch available Online

SUPERVISORS

- Sanjiv Narayan

Bio

BIO

Prasanth "Prash" Ganesan is a Research Scientist at Stanford Cardiovascular Medicine. His research is focused on developing novel signal processing and machine learning algorithms for personalizing ablation therapy for patients with heart rhythm disorder, especially atrial fibrillation. He was previously a research fellow at the US National Institutes of Health working on conditions such as cervical cancer and Pneumonia using Deep Learning methods. He was recognized in the prestigious Forbes 30 Under 30 Asia 2022 list in Healthcare and Science category. He is a co-inventor of patents on novel mapping approaches for atrial fibrillation. He aspires to become a renowned bioengineering scientist developing innovative methods to improve healthcare globally. In his free time he enjoys hiking, playing badminton, and exploring restaurants and food places.

HONORS AND AWARDS

- Editors' Pick Research Article, Circulation Arrhythmia and Electrophysiology (2025)
- Young Investigator Award Finalist (shared first author), Heart Rhythm Society 2024 (2024)
- Fellows Research Award 1st Place Winner, Western Atrial Fibrillation Conference, Utah (2023)
- Forbes 30 Under 30 Asia list in Healthcare and Science, Forbes (2022)
- Best Poster Award, Karlshruhe Institute of Technology, Germany (2021)
- Young Investigator Award Finalist, Asia-Pacific Heart Rhythm Society (2021)
- The Provost Honorary Recognition for Publishing, Florida Atlantic University (2019)
- 3-Minute Thesis Winner, Department of Electrical Engineering, Florida Atlantic University (2017)
- Best Paper Award Finalist, IEEE Engineering in Medicine and Biology Society (2016)

EDUCATION AND CERTIFICATIONS

- Postdoctoral Fellowship, Stanford University School of Medicine , Bioengineering (2023)
- Fellowship, US National Institutes of Health , Artificial Intelligence in Medicine (2018)
- PhD, Florida Atlantic University , Electrical Engineering (2019)
- MS, Rochester Institute of Technology , Electrical Engineering (2015)
- BE, Anna University , Electronics Engineering (2013)

PATENTS

- Prasanth Ganesan, Behnaz Ghoraani. "United States Patent US10398338B2 Systems and methods for guiding a multi-pole sensor catheter to locate cardiac arrhythmia sources", National Institutes of Health, Florida Atlantic University Board of Trustees, Oct 6, 2017
- Prasanth Ganesan, Behnaz Ghoraani. "United States Patent US10398346B2 Systems and methods for localizing signal resources using multi-pole sensors", National Institutes of Health, Florida Atlantic University Board of Trustees, May 15, 2017

LINKS

- Computational Arrhythmia Research Lab: http://web.stanford.edu/group/narayanlab/cgi-bin/wordpress/

Publications

PUBLICATIONS

- **PREDICTION OF INCIDENT DEMENTIA IN ATRIAL FIBRILLATION PATIENTS**
  Bandyopadhyay, S., Srivastava, V., Peralta, E., Stringer, J., Ansari, R., Ganesan, P., Deb, B., Clopton, P., Rogers, A. J., Brodt, C., Narayan, S. M.
  ELSEVIER SCIENCE INC.2026: A145

- **Reducing diverse sources of noise in ventricular electrical signals using variational autoencoders** *EXPERT SYSTEMS WITH APPLICATIONS*
  Ruiperez-Campillo, S., Ryser, A., Sutter, T. M., Deb, B., Feng, R., Ganesan, P., Brennan, K. A., Rogers, A. J., Kolk, M. Z. H., Tjong, F. V. Y., Narayan, S. M., Vogt, J. E.
  2026; 300

- **Impact of Catheter Configuration on the Mapping of Atrial Fibrillation.** *Circulation. Arrhythmia and electrophysiology*
  Rodrigo, M., Ruipérez-Campillo, S., Ganesan, P., Feng, R., Narayan, S. M.
  2026: e014061

- **Deep Learning-Based Continuous QT Monitoring to Identify High-Risk Prolongation Events After Class III Antiarrhythmic Initiation.** *Circulation*
  Ansari, R. A., Bandyopadhyay, S., Trivedi, R. K., Brennan, K. A., Liu, X., Ganesan, P., Hughes, J. W., Perino, A. C., Ashley, E. A., Wang, P. J., Coleman, T., Perez, M. V., Ouyang, et al
  2026; 153 (1): 35-46

- **Deep Learning-Based Continuous QT Monitoring Identifies High-Risk Prolongation Events After Class III Antiarrhythmic Initiation**
  Rogers, A., Ansari, R., Bandyopadhyay, S., Trivedi, R., Brennan, K., Ganesan, P., Perino, A., Ashley, E., Wang, P., Perez, M., Ouyang, D., Narayan, S.
  LIPPINCOTT WILLIAMS & WILKINS.2025

- **Development of Personalized Myocardial Surface Mesh Models with LGE Scar Integration: a Pipeline for Machine Learning and Digital Twins**
  Liu, X., Qayyum, A., Ganesan, P., Bandyopadhyay, S., Somani, S., Brennan, K., Wang, P., Niederer, S., Narayan, S., Rogers, A.
  LIPPINCOTT WILLIAMS & WILKINS.2025

- **Abstract 4367773: Predicting Peak Heart Rate from Resting 12-Lead ECGs in Patients Undergoing Stress Testing using Deep Learning**
  Liu, X., Bandyopadhyay, S., Ganesan, P., Somani, S., Brennan, K., Karius, A., Baykaner, T., Perino, A., Wang, P., Ashley, E., Perez, M., Narayan, S., Rogers, et al
  LIPPINCOTT WILLIAMS & WILKINS.2025

- **AI-based prediction of mortality in patients with ventricular tachycardia**
  Bandyopadhyay, S., Sadri, S., Brennan, K., Ganesan, P., Clopton, P., Ruiperez-Campillo, S., Peralta, E., Sillett, C., Rogers, A., Narayan, S.
  LIPPINCOTT WILLIAMS & WILKINS.2025

- **Identifying optimum ECG features to predict sudden cardiac arrest at varying time points before the event**
  Bandyopadhyay, S., Ganesan, P., Brennan, K., Ruiperez-Campillo, S., Ansari, R., Clopton, P., Perino, A., Wang, P., Ashley, E., Perez, M., Narayan, S., Rogers, A.
  LIPPINCOTT WILLIAMS & WILKINS.2025

- **Novel Foundation Models for Detecting and Generating Text Reports of Atrial Fibrillation from 12-lead ECGs in a Large Registry**

Ganesan, P., Peralta, E., Ruiperez-Campillo, S., Bandyopadhyay, S., Rogers, A., Chang, H., Brennan, K., Sillett, C., Clopton, P., Perino, A., Niederer, S., Narayan, S.

LIPPINCOTT WILLIAMS & WILKINS.2025

- **Automated End-to-End Framework for Extracting Raw ECG Waveforms and ST Segment Values from ECG Reports and Predicting ST Elevation by Machine Learning**

  Ganesan, P., Liu, X., Bandyopadhyay, S., Ansari, R., Somani, S., Brennan, K., Karius, A., Baykaner, T., Perino, A., Wang, P., Ashley, E., Perez, M., Narayan, et al

  LIPPINCOTT WILLIAMS & WILKINS.2025

- **Non-Contact Magnetocardiography Localizes Atrial Foci as Accurately as High-Resolution Contact ECG**

  Brennan, K., Bandyopadhyay, S., Ganesan, P., Ansari, R., Somani, S., Liu, X., Baykaner, T., Perino, A., Wang, P., Narayan, S., Rogers, A.

  LIPPINCOTT WILLIAMS & WILKINS.2025

- **Transformer-based ECG beat foundation model reconstructs full 12-Lead morphology, vectorcardiogram and predicts peak heart rate in stress ECG**

  Bandyopadhyay, S., Liu, X., Ganesan, P., Somani, S., Karius, A., Baykaner, T., Wang, P., Ashley, E., Perez, M., Narayan, S., Rogers, A.

  LIPPINCOTT WILLIAMS & WILKINS.2025

- **Longitudinal Evaluation of Anti-Arrhythmic Drug Use to Predict Hospitalization or Death in Patients with Ventricular Tachycardia**

  Sadri, S., Brennan, K., Bandyopadhyay, S., Ganesan, P., Desai, Y., Peralta, E., Feng, R., Sillett, C., Ruiperez-Campillo, S., Wang, P., Clopton, P., Rogers, A., Narayan, et al

  LIPPINCOTT WILLIAMS & WILKINS.2025

- **Large Language Models Detect Ventricular Tachycardia Recurrence in Clinical Notes and Enable Prediction of Clinical Outcomes at Scale**

  Sadri, S., Brennan, K., Bandyopadhyay, S., Desai, Y., Ganesan, P., Peralta, E., Feng, R., Sillett, C., Ruiperez-Campillo, S., Wang, P., Clopton, P., Rogers, A., Narayan, et al

  LIPPINCOTT WILLIAMS & WILKINS.2025

- **Physics-Inspired Diffusion Probabilistic Models for Improved Denoising in Intracardiac Time Series.** *Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Annual International Conference*

  Ruiperez-Campillo, S., Rau, M., Ganesan, P., Brennan, K. A., Feng, R., Bandyopadhyay, S., Rogers, A. J., Narayan, S. M., Vogt, J. E.

  2025; 2025: 1-5

- **CONTINUOUS LONG-TERM QT INTERVAL MONITORING USING SPATIALLY ENCODED DEEP LEARNING OF DERIVED IMPLANTABLE CARDIAC MONITOR SIGNALS**

  Ansari, R., Bandyopadhyay, S., Brennan, K., Srivastava, V., Ganesan, P., Feng, R., Baykaner, T., Perez, M., Perino, A., Narayan, S. M., Rogers, A. J.

  ELSEVIER SCIENCE INC.2025: 24

- **LARGE LANGUAGE MODELS IDENTIFY ATRIAL FIBRILLATION PROGRESSION ON UNPRECEDENTED SCALE**

  Brennan, K., Feng, R., Goyal, J., Chang, H., Deb, B., Srivastava, V., Ganesan, P., Bandyopadhyay, S., Ansari, R., Ruiperez-Campilo, S., Clopton, P., De Larocheliere, H., Rogers, et al

  ELSEVIER SCIENCE INC.2025: 237

- **PROMPT-ENGINEERING OPTIMIZED CHATGPT AS A GENERAL TOOL FOR ANALYZING COMPLEX ELECTRONIC HEALTH RECORDS**

  Feng, R., Brennan, K., Ganesan, P., Goyal, J., Deb, B., Azizi, Z., Chang, H., Ruiperez-Campilo, S., Clopton, P., Baykaner, T., Rogers, A. J., Narayan, S. M.

  ELSEVIER SCIENCE INC.2025: 120

- **Comparing Phenotypes for Acute and Long-Term Response to Atrial Fibrillation Ablation Using Machine Learning.** *Circulation. Arrhythmia and electrophysiology*

  Ganesan, P., Pedron, M., Feng, R., Rogers, A. J., Deb, B., Chang, H. J., Ruiperez-Campillo, S., Srivastava, V., Brennan, K. A., Giles, W., Baykaner, T., Clopton, P., Wang, et al

  2025: e012860

- **Identification of atrial myopathy and atrial fibrillation recurrence after ablation using 3D left atrial phasic strain from retrospective gated computed tomography.** *European heart journal. Imaging methods and practice*

  Sillett, C., Razeghi, O., Baptiste, T. M., Lee, A. W., Solis Lemus, J. A., Rodero, C., Roney, C. H., Feng, R., Ganesan, P., Chang, H. J., Clopton, P., Linton, N., Rajani, et al

  2025; 3 (1): qyaf027

- **Engineering of Generative Artificial Intelligence and Natural Language Processing Models to Accurately Identify Arrhythmia Recurrence.** *Circulation. Arrhythmia and electrophysiology*
  Feng, R., Brennan, K. A., Azizi, Z., Goyal, J., Deb, B., Chang, H. J., Ganesan, P., Clopton, P., Pedron, M., Ruipe Rez-Campillo, S., Desai, Y., De Larochellière, H., Baykaner, et al
  2024: e013023

- **Novel Domain Knowledge-Encoding Algorithm Enables Label-Efficient Deep Learning for Cardiac CT Segmentation to Guide Atrial Fibrillation Treatment in a Pilot Dataset.** *Diagnostics (Basel, Switzerland)*
  Ganesan, P., Feng, R., Deb, B., Tjong, F. V., Rogers, A. J., Ruipérez-Campillo, S., Somani, S., Clopton, P., Baykaner, T., Rodrigo, M., Zou, J., Haddad, F., Zaharia, et al
  2024; 14 (14)

- **AUTOMATED, ACCURATE IDENTIFICATION OF VENTRICULAR TACHYCARDIA FROM ELECTRONIC HEALTH RECORDS USING NATURAL LANGUAGE PROCESSING**
  Brennan, K., Azizi, Z., Feng, R., Goyal, J., Liu, X., Ganesan, P., Ruiperez-Campillo, S., Baykaner, T., Badhwar, N., John, R. M., Viswanathan, M., Perino, A., Wang, et al
  ELSEVIER SCIENCE INC.2024: 2644

- **Spatially Conserved Spiral Wave Activity During Human Atrial Fibrillation.** *Circulation. Arrhythmia and electrophysiology*
  Rappel, W. J., Baykaner, T., Zaman, J., Ganesan, P., Rogers, A. J., Narayan, S. M.
  2024: e012041

- **Novel Regional Analysis of Left Atrial Strain From Computed Tomography Separates Patients With Persistent versus Paroxysmal Atrial Fibrillation**
  Sillett, C., Razeghi, O., Lee, A., Lemus, J., Roney, C., Ganesan, P., Feng, R., Chubb, H., Nieman, K., Rogers, A. J., Rajani, R.
  LIPPINCOTT WILLIAMS & WILKINS.2023

- **Separating Patients With Long-Term Success versus Acute Response From Atrial Fibrillation Ablation Using Explainable Machine Learning**
  Ganesan, P., Pedron, M., Feng, R., Ruiperez-Campillo, S., Rogers, A. J., Deb, B., Chang, H., Brennan, K. A., Srivastava, V., Clopton, P. L., Narayan, S. M.
  LIPPINCOTT WILLIAMS & WILKINS.2023

- **Segmenting computed tomograms for cardiac ablation using machine learning leveraged by domain knowledge encoding.** *Frontiers in cardiovascular medicine*
  Feng, R., Deb, B., Ganesan, P., Tjong, F. V., Rogers, A. J., Ruipérez-Campillo, S., Somani, S., Clopton, P., Baykaner, T., Rodrigo, M., Zou, J., Haddad, F., Zahari, et al
  2023; 10: 1189293

- **Quantifying a spectrum of clinical response in atrial tachyarrhythmias using spatiotemporal synchronization of electrograms.** *Europace : European pacing, arrhythmias, and cardiac electrophysiology : journal of the working groups on cardiac pacing, arrhythmias, and cardiac cellular electrophysiology of the European Society of Cardiology*
  Ganesan, P., Deb, B., Feng, R., Rodrigo, M., Ruiperez-Campillo, S., Rogers, A. J., Clopton, P., Wang, P. J., Zeemering, S., Schotten, U., Rappel, W., Narayan, S. M.
  2023

- **VENTRICULAR TACHYCARDIA PREDICTS ATRIAL FIBRILLATION RECURRENCE POST ABLATION: A PROPENSITY SCORE-MATCHED ANALYSIS OF A LARGE PROSPECTIVE STUDY**
  Azizi, Z., Deb, B., Feng, R., Ganesan, P., Rogers, A. J., Chang, H., Clopton, P., Narayan, S. M.
  ELSEVIER SCIENCE INC.2023: 186

- **OBSTRUCTIVE SLEEP APNEA PORTENDS STROKE IN YOUNG INDIVIDUALS WITHOUT ATRIAL FIBRILLATION: A LARGE REGISTRY STUDY**
  Deb, B., Vasireddi, S., Bhatia, N. K., Rogers, A. J., Clopton, P., Baykaner, T., Ganesan, P., Feng, R., Azizi, Z., Narayan, S. M.
  ELSEVIER SCIENCE INC.2023: 130

- **Optimizing ChatGPT to Detect VT Recurrence From Complex Medical Notes**
  Feng, R., Brennan, K. A., Azizi, Z., Goyal, J., Pedron, M., Chang, H., Ganesan, P., Ruiperez-Campillo, S., Deb, B., Clopton, P. L., Baykaner, T., Rogers, A. J., Narayan, et al
  2023

- **Variance In Endocardial Voltage Between The Sinus Node And Other Bi-atrial Regions In Patients With Atrial Fibrillation**
  Srivastava, V., Ganesan, P., Goyal, J., Deb, B., Azizi, Z., Narayan, S. M.
  2023
- **Predicting acute termination and non-termination during ablation of human atrial fibrillation using quantitative indices.** *Frontiers in physiology*
  Kappel, C., Reiss, M., Rodrigo, M., Ganesan, P., Narayan, S. M., Rappel, W. J.
  2022; 13: 939350
- **Atrial fibrillation signatures on intracardiac electrograms identified by deep learning.** *Computers in biology and medicine*
  Rodrigo, M., Alhusseini, M. I., Rogers, A. J., Krittanawong, C., Thakur, S., Feng, R., Ganesan, P., Narayan, S. M.
  2022; 145: 105451
- **TARGETING SYNCHRONIZED ELECTROGRAM ISLANDS WITHIN ATRIAL FIBRILLATION FOR ABLATION**
  Ganesan, P., Deb, B., Feng, R., Rodrigo, M., Ruiperez-Campillo, S., Bhatia, N. K., Rogers, A. J., Clopton, P., Rappel, W., Narayan, S. M.
  ELSEVIER SCIENCE INC.2022: 3
- **A MORPHOLOGICAL OPERATION-BASED APPROACH TO AUTOMATICALLY SEPARATE AND LABEL LEFT ATRIUM BODY AND PULMONARY VEINS**
  Feng, R., Ganesan, P., Deb, B., Rogers, A. J., Ruiperez-Campillo, S., Rodrigo, M., Zaharia, M., Clopton, P., Rappel, W., Narayan, S. M.
  ELSEVIER SCIENCE INC.2022: 1244
- **UNSUPERVISED MACHINE LEARNING IDENTIFIES PHENOTYPES FOR ATRIAL FIBRILLATION THAT PREDICT ACUTE ABLATION SUCCESS**
  Deb, B., Ganesan, P., Feng, R., Bhatia, N. K., Rogers, A. J., Ruiperez-Campillo, S., Clopton, P., Narayan, S. M.
  ELSEVIER SCIENCE INC.2022: 51
- **Deep learning model calibration for improving performance in class-imbalanced medical image classification tasks.** *PloS one*
  Rajaraman, S., Ganesan, P., Antani, S.
  1800; 17 (1): e0262838
- **Identifying Atrial Fibrillation Mechanisms for Personalized Medicine.** *Journal of clinical medicine*
  Deb, B., Ganesan, P., Feng, R., Narayan, S. M.
  2021; 10 (23)
- **CONSISTENT SPATIOTEMPORAL VECTORS IN ATRIAL FIBRILLATION PREDICT RESPONSE TO ABLATION**
  Ganesan, P., Bhatia, N., Beck, T. C., Ravi, N., Rogers, A., Krummen, D., Wang, P., Rappel, W., Narayan, S.
  ELSEVIER SCIENCE INC.2021: 334
- **CLASSIFICATION OF INDIVIDUAL ATRIAL INTRACARDIAC ELECTROGRAMS BY DEEP LEARNING**
  Rodrigo, M., Rogers, A., Ganesan, P., Krittanawong, C., Alhusseini, M., Narayan, S.
  ELSEVIER SCIENCE INC.2021: 3217
- **PROBING MACHINE LEARNING TO SEPARATE ATRIAL FIBRILLATION FROM OTHER ARRHYTHMIAS**
  Rodrigo, M., Rogers, A., Ganesan, P., Alhusseini, M., Krittanawong, C., Narayan, S.
  ELSEVIER SCIENCE INC.2021: 3410
- **MACHINE LEARNING CLASSIFIES INTRACARDIAC ELECTROGRAMS OF ATRIAL FIBRILLATION FROM OTHER ARRHYTHMIAS**
  Rodrigo, M., Rogers, A., Ganesan, P., Krittanawong, C., Alhusseini, M., Narayan, S.
  ELSEVIER SCIENCE INC.2021: 279
- **Three dimensional reconstruction to visualize atrial fibrillation activation patterns on curved atrial geometry.** *PloS one*
  Abad, R., Collart, O., Ganesan, P., Rogers, A. J., Alhusseini, M. I., Rodrigo, M., Narayan, S. M., Rappel, W.
  2021; 16 (4): e0249873
- **Deep Neural Network Trained on Surface ECG Improves Diagnostic Accuracy of Prior Myocardial Infarction Over Q Wave Analysis**
  Yildirim, O., Baloglu, U. B., Talo, M., Ganesan, P., Tung, J. S., Kang, G., Tooley, J., Alhusseini, M., Baykaner, T., Wang, P. J., Perez, M., Tereshchenko, L., Narayan, et al
  IEEE.2021

- **Atrial fibrillation source area probability mapping using electrogram patterns of multipole catheters** *BIOMEDICAL ENGINEERING ONLINE*
  Ganesan, P., Cherry, E. M., Huang, D. T., Pertsov, A. M., Ghoraani, B.
  2020; 19 (1): 27
- **Re-evaluating The Multiple Wavelet Hypothesis for Atrial Fibrillation.** *Heart rhythm*
  Ganesan, P. n., Narayan, S. M.
  2020
- **Locating Atrial Fibrillation Rotor and Focal Sources Using Iterative Navigation of Multipole Diagnostic Catheters** *CARDIOVASCULAR ENGINEERING AND TECHNOLOGY*
  Ganesan, P., Cherry, E. M., Huang, D. T., Pertsov, A. M., Ghoraani, B.
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- **Iterative navigation of multipole diagnostic catheters to locate repeating-pattern atrial fibrillation drivers** *JOURNAL OF CARDIOVASCULAR ELECTROPHYSIOLOGY*
  Ganesan, P., Salmin, A., Cherry, E. M., Huang, D. T., Pertsov, A. M., Ghoraani, B.
  2019; 30 (5): 758–68
- **Assessment of Data Augmentation Strategies Toward Performance Improvement of Abnormality Classification in Chest Radiographs.** *Conference proceedings : ... Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Annual Conference*
  Ganesan, P., Rajaraman, S., Long, R., Ghoraani, B., Antani, S.
  2019; 2019: 841–44
- **Performance Evaluation of a Generative Adversarial Network for Deblurring Mobile-phone Cervical Images**
  Ganesan, P., Xue, Z., Singh, S., Long, R., Ghoraani, B., Antani, S., IEEE
  IEEE.2019: 4487–90
- **Assessment of Data Augmentation Strategies Toward Performance Improvement of Abnormality Classification in Chest Radiographs**
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  IEEE.2019: 841–44
- **Performance Evaluation of a Generative Adversarial Network for Deblurring Mobile-phone Cervical Images.** *Conference proceedings : ... Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Annual Conference*
  Ganesan, P., Xue, Z., Singh, S., Long, R., Ghoraani, B., Antani, S.
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- **Developing an Iterative Tracking Algorithm to Guide a Catheter Towards Atrial Fibrillation Rotor Sources in Simulated Fibrotic Tissue**
  Ganesan, P., Zilouchian, H., Cherry, E. M., Pertsov, A. M., Ghoraani, B., IEEE
  IEEE.2018
- **Development of a Rotor-Mapping Algorithm to Locate Ablation Targets During Atrial Fibrillation**
  Ganesan, P., Cherry, E. M., Pertsov, A. M., Ghoraani, B., IEEE
  IEEE.2018: 41–44
- **Simulation of Spiral Waves and Point Sources in Atrial Fibrillation with Application to Rotor Localization**
  Ganesan, P., Shillieto, K. E., Ghoraani, B.
  edited by Bamidis, P. D., Konstantinidis, S. T., Rodrigues, P. P.
  IEEE.2017: 379–84
- **Characterization of Electrograms from Multipolar Diagnostic Catheters during Atrial Fibrillation.** *BioMed research international*
  Ganesan, P., Cherry, E. M., Pertsov, A. M., Ghoraani, B.
  2015; 2015: 272954