**CHRIS MALEC, Ph.D.**

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| **Contact**  **email:** [cemalec@gmail.com](mailto:cemalec@gmail.com)  **phone:** (404) 862 - 2599  **in:** in/chris-malec-03452251/  **git:** <https://github.com/cemalec>  **Website:** [**https://cemalec.github.io/main**](https://cemalec.github.io/main)  **EDUCATION**  **PhD Physics:** Georgia Institute of Technology  Advisor: Dragomir Davidovic  **B.S. Physics:** University of Wisconsin-Madison  [**Data Science Specialization:**](https://www.coursera.org/account/accomplishments/specialization/RY2799CBRHZT) Coursera (Johns Hopkins)  **Springboard:** Data Science Career Track (in progress)  **SKILLS**  **Programming and Analysis**:  Python / Visual Python **|** Jupyter | R | Caret | ggplot2 | Autocad **|** Unix shell scripting **|** Labview **|** LaTeX **|** Matlab **|** MS Office/Excel **|** SQL **|** json |Git/Github **|** Supervised Machine Learning **|** Signal Processing **|** Image Processing **|** Dimensionality Reduction | scikit learn | pandas | matplotlib | NLP | API | Design of Experiments | Instrument Automation  **PATENTS**  [No. 8497499 - A method to modify the conductivity of graphene.](http://patft.uspto.gov/netacgi/nph-Parser?Sect2=PTO1&Sect2=HITOFF&p=1&u=/netahtml/PTO/search-bool.html&r=1&f=G&l=50&d=PALL&RefSrch=yes&Query=PN/8497499) Inventors: Dragomir Davidovic, Walter A. de Heer, Christopher E. Malec  [No. 9276197 - A method of detecting Domain Walls in a nano magnet](http://patft.uspto.gov/netacgi/nph-Parser?Sect2=PTO1&Sect2=HITOFF&p=1&u=/netahtml/PTO/search-bool.html&r=1&f=G&l=50&d=PALL&RefSrch=yes&Query=PN/9276197) **|** Inventors: Mark B. Johnson, Christopher E. Malec | **WORK EXPERIENCE**  **Science Writer:** Journal of Visualized Experiments (JoVE) - remote (2018-present) | Wrote scripts, storyboards, and analysis workflows to be turned into instructional videos for introductory college physics labs.  **Physics Faculty**: Bard High School Early College - Baltimore (2015-2018) **|** **Classes taught:** College Physics: Mechanics, Freshman Physics: Motion and Waves, College Physics: Modern Physics, Chinese Society and Technology, Geometry  **Engineering Instructor:** Johns Hopkins - Frederick, MD (Summer of 2017-2019 **|** Delivered the Johns Hopkins Engineering Innovation class, to talented high school students at the Hood College Campus.  **Post-doctoral Researcher:** Naval Research Laboratory (Public Trust Clearance) - Washington, D.C. (2012 - 2015) **|** Researched fabrication, measurement, and analysis of novel Domain Wall based memory devices.  **Graduate Teaching/Research Assistant:** Georgia Institute of Technology - Atlanta, GA (2005 - 2011) **|** Conducted research into graphene devices as well as single nano-particle based tunneling devices.  **Selected Projects & Publications**  [**Student Outcomes (in progress)**](https://github.com/cemalec/Data-Science-Porfolio/tree/master/Capstone%20ProjectOne)Publicly available data used to predict high school dropout with an unbalanced logistic regression model.  [**Word Prediction Algorithm**](https://cemalec.shinyapps.io/WordPredict/)An NLP algorithm with UI built in R shiny. I used an n-gram model to look up the most probable next word given the prior one to three words. Data supplied by SwiftKey.  [**Am I doing this exercise right?**](http://htmlpreview.github.io/?https://github.com/cemalec/PML_Project/blob/master/PML_project.html)A model made from observations of motion tracking devices. I used several algorithms (including random forest and gradient boosting) to classify movements into correct execution or one of several error modes..  [**Analysis of PBC data**](http://htmlpreview.github.io/?https://github.com/cemalec/PBC-analysis/blob/master/PBC_analysis.html)An analysis of a study into Primary Biliary Cirrhosis, including hypothesis tests and data visualization.  [Anisotropic Magnetoresistance Dominant in a Three Terminal Hanle Measurement](http://scitation.aip.org/content/aip/journal/apl/108/7/10.1063/1.4942007) 2016, *Applied Physics Letters*, **C. E. Malec**, Michael M. Miller, Mark B. Johnson **|** A device using the spin of electrons is fabricated. We test the new three terminal Hanle technique.  [Transport in Graphene Tunnel Junctions](https://aip.scitation.org/doi/pdf/10.1063/1.3554480) 2011, *Journal of Applied Physics*, **C. E. Malec**, Dragomir Davidovic **|** Measurement and modeling of tunnel junctions made from a single graphite layer and Al or Cu. |