



# Mentor: Dr. Zhenguo (Gavin) Nie


- Postdoc Researcher at **Carnegie Mellon University**
- [zhenguon@andrew.cmu.edu](mailto:zhenguon@andrew.cmu.edu)
- [zhenguonie@gmail.com](mailto:zhenguonie@gmail.com)
- Bachelor degree on MSE (Materials Science and Engineering) from Shandong University
- Dual master degree on ME (Mechanical Engineering) and CS (Computer Science) from Tsinghua University
- Ph.D. degree on ME from Tsinghua University

# Research at CMU

- Working on AI and Deep Learning on engineering applications.
- Current Research: CNN, GANs, GNN; DRL, etc.








Zhenguo Nie 

[Carnegie Mellon University](#)  
Verified email at andrew.cmu.edu

[Mechanical Engineering](#) [Machine \(Deep\) Learning](#) [Additive Manufacturing](#)  
[Topology Optimization](#) [CAE](#)



<input type="checkbox"/>	TITLE  	CITED BY	YEAR
<input type="checkbox"/>	<a href="#">Optimization of Part Consolidation for Minimum Production Costs and Time Using Additive Manufacturing</a> Z Nie, S Jung, LB Kara, KS Whitefoot Journal of Mechanical Design 142 (7)	1	2020
<input type="checkbox"/>	<a href="#">TopologyGAN: Topology Optimization Using Generative Adversarial Networks Based on Physical Fields Over the Initial Domain</a> Z Nie, T Lin, H Jiang, LB Kara arXiv preprint arXiv:2003.04685		2020
<input type="checkbox"/>	<a href="#">Voxel-based analysis and modeling of MRR computational accuracy in milling process</a> Z Nie, R Lynn, T Tucker, T Kurfess CIRP Journal of Manufacturing Science and Technology 27, 78-92		2019
<input type="checkbox"/>	<a href="#">Stress Field Prediction in Cantilevered Structures Using Convolutional Neural Networks</a> Z Nie, H Jiang, LB Kara Journal of Computing and Information Science in Engineering 1-11	5 <sup>*</sup>	2019

# Teaching at CMU

- <https://www.coursicle.com/cmu/courses/MEG/24281/>

**Coursicle**

MEG at CMU

## MEG 24281 - Introduction to Scientific Computing

### Description

This course provides an introduction to scientific computing with Matlab for engineers. The course introduces the basics of Matlab syntax and programming, data analysis, visualization, curve fitting and interpolation, symbolic computation, differential equations, and debugging. The use of Matlab in solving mechanical engineering applications will be demonstrated.

### Credits

2

### Recent Professors

Mohammad Saleh, Zhenguo Nie, Hugo Penelas

### Schedule Planner

[Add MEG 24281 to your schedule](#)

### Recent Semesters

Spring 2020, Fall 2019, Spring 2019, Fall 2018

### Offered

W

### Avg. Sections

2

# Mentor Session Goal

- Recitation
- Implementation
- Reinforcement

# Mentor Session 1

- Python Installation
- Python IDE
- Python Tutorial – Part 1

# Python & Anaconda

- 1. Official Python
- 2. Official Python + PyCharm
- 3. **Anaconda**: Window, Linux, Mac

# Python + PyCharm

- <https://www.python.org/>
- The up-to-date version: 3.8.2
- <https://www.jetbrains.com/pycharm/>
- Free for Education.
- [zhenguon@andrew.cmu.edu](mailto:zhenguon@andrew.cmu.edu) ✓
- [zhenguonie@gmail.com](mailto:zhenguonie@gmail.com) ✗



# Anaconda

- <https://www.anaconda.com/>



## Anaconda 2019.10 for Windows Installer

### Python 3.7 version

Download

64-Bit Graphical Installer (462 MB)

32-Bit Graphical Installer (410 MB)

### Python 2.7 version

Download

64-Bit Graphical Installer (413 MB)

32-Bit Graphical Installer (356 MB)



# IDE(Integrated development environment)

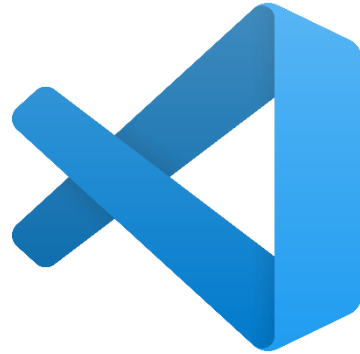
Jupyter Notebook



Spyder



VS Code



PyCharm

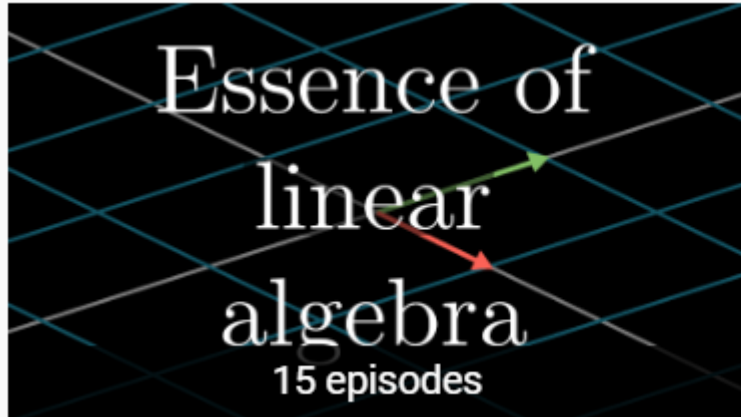
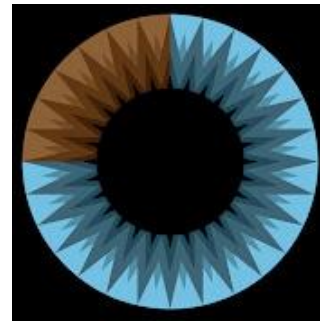


# Editor

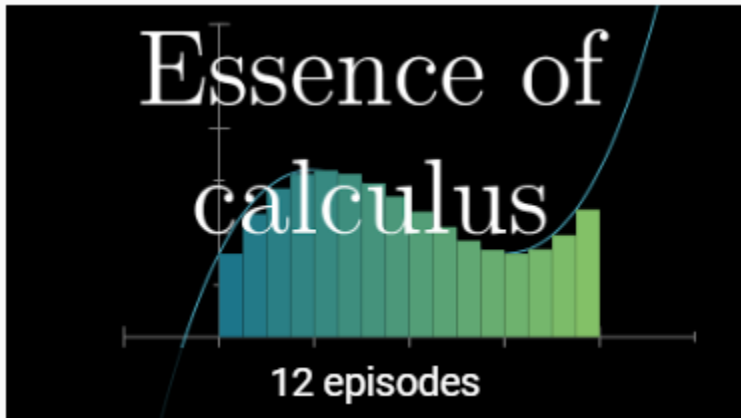
- Notepad
- Notepad++
- Sublime
- UltraEdit
- EditPlus
- etc.



# YouTube 3Blue1Brown



Essence of linear algebra  
3Blue1Brown



Essence of calculus  
3Blue1Brown

# YouTube: Machine Learning | Andrew Ng



# Download Academic Papers

- 1. Search it in Google Scholar: <https://scholar.google.com/>
- 2. Open the webpage, and copy the website
- 3. Find it in SCI-Hub: <https://sci-hub.tw/>

# ML Packages for Python

- Tensorflow or PyTorch
- Numpy
- SciPy
- Pandas
- Matplotlib
- Scikit-learn

# Proxy (Flip the wall)

- <https://xiyou4you.us/r/?s=12491373>

包月

包季度

包年

桌面套餐

20 元/月

可用西游 Win / Mac / 插件版  
支持加速浏览器和桌面软件  
部分支持命令行程序  
支持仅加速海外流量 (体验好)  
支持代理全部流量 (覆盖全)  
支持同时登录2个终端

降级套餐, 并减少1终端

支付费用5元 | 降级套餐 | 转增7.3天

全端套餐

32 元/月

享有【桌面套餐】的全部功能  
支持Android移动设备  
支持iOS移动设备  
支持Linux桌面系统  
自动支持所有命令行程序  
支持同时登录 3 个终端

续期

支付32元 | 续期31天

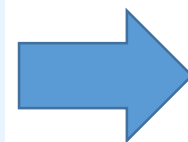
团队套餐

135 元/月

享有【全端套餐】的全部功能  
可自由增减团队成员账号  
团队成员共享终端数  
支持同时登录 10 个终端

升级套餐, 并增加7终端

补差价44.36元 | 升级套餐



Google  
Google Scholar  
YouTube