

國立成功大學敏求運算學院  
113-1 智慧運算工程博士學位學程  
資格考參考書籍及範圍

科目	參考書籍及範圍
半導體記憶體元件與設計實務	<p>(1) Lecture Materials of the course “Semiconductor Memory Devices and Circuits 半導體記憶體元件與設計實務”</p> <p>(2) “Beyond-CMOS Technologies for Next Generation Computer Design”, Chapter 4: Emerging NVM Circuit Technologies and Implementations for Energy-Efficient Systems, Springer, Editors: Rasit O. Topaloglu, H. -S. Philip Wong</p> <p>(3) “NAND Flash Memory Technologies”, Wiley, Editor: Seiichi Aritome</p> <p>(4) “3D Flash Memories”, Springer, Editor: Rino Micheloni</p>
半導體製程	<p>Stephen A Campbell, Fabrication engineering at the micro and nanoscale, Oxford University Press</p> <ul style="list-style-type: none"> <li>● Chapter 1 Intro</li> <li>● Chapter 2 Semiconductor Substrate</li> <li>● Chapter 3 Diffusion</li> <li>● Chapter 4 Thermal Oxidation</li> <li>● Chapter 5 Ion Implantation</li> <li>● Chapter 7 Optical Lithography</li> <li>● Chapter 8 Photoresists</li> <li>● Chapter 11 Etching</li> <li>● Chapter 12 Physical Deposition</li> <li>● Chapter 13 Chemical Vapor Deposition</li> <li>● Chapter 15 Device Isolation, Contacts, Metallization</li> </ul>
自然語言處理	<p>Dan Jurafsky and James H. Martin, Speech and Language Processing (3rd ed. draft)</p> <ul style="list-style-type: none"> <li>● Fundamental Algorithms for NLP, NLP Applications, and Annotating Linguistic Structure</li> </ul>

科目	參考書籍及範圍
社群網路與推薦系統	<p>(1) Aggarwal, C. C. (2016). Recommender Systems. DOI:10.1007/978-3-319-29659-3</p> <p>(2) Schall, D. (2015). Social Network-Based Recommender Systems. DOI: <a href="https://doi.org/10.1007/978-3-319-22735-1">https://doi.org/10.1007/978-3-319-22735-1</a></p>
實驗設計	<p>Design and Analysis of Experiments. By Montgomery. 8th Edition. John Wiley and Sons.</p> <ul style="list-style-type: none"> <li>● Single-factor experiments and factorial experiments.</li> <li>● Confounding in blocks.</li> <li>● Fractional factorial design.</li> <li>● Two and three levels factorial experiment.</li> <li>● Response surface experimentation</li> </ul>
機器學習(含深度學習)	<p>(1) Pattern Recognition 3rd Edition - April 7, 2006 Authors: Sergios Theodoridis, Konstantinos Koutroumbas Language: English eBook ISBN: 9780080513614 範圍：Ch2 - Bayes decision theory to Ch14 Clustering algorithm III.</p> <p>(2) Deep Learning: 無參考書目 範圍：Neural network, MLP, Convolutional neural network, backpropagation, optimization in NN, Recurrent neural networks, Transformer, Mamba, xLSTM, and Kolmogorov–Arnold Networks.</p>
電腦視覺	<p>Richard Szeliski, Computer Vision: Algorithms and Applications, 2010, Springer (網路可下載)</p>

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機率統計	<p>(1) Devore, J. L., Berk, K. N., &amp; Carlton, M. A. (2012). <i>Modern mathematical statistics with applications</i> (Vol. 285). New York: Springer.</p> <p><a href="#">Modern Mathematical Statistics with Applications   SpringerLink</a></p> <p>用成大校園網路可以下載電子書。</p> <p>主要考題包含下述：描述性統計 (Chapter 1)、機率 (Chapters 2-5)、統計 (Chapters 7-12)</p> <p>(2) 第二本書： Maurits; Van Den Heuvel Kaptein (Edwin). (2022). <i>Statistics for Data Scientists: An Introduction to Probability, Statistics, and Data Analysis</i>. Springer.</p> <p><a href="#">Statistics for Data Scientists: An Introduction to Probability, Statistics, and Data Analysis   SpringerLink</a></p>
計算機神經科學	<p>電子書：<a href="https://compcogneuro.org/">https://compcogneuro.org/</a></p>
類神經網路	<p>(1) Neural Networks and Deep Learning-A Textbook, Charu C. Aggarwal-- Chapter 1, 3, 4, 8</p> <p>(2) Deep Learning: A Practitioner's Approach, Josh Patterson, Adam Gibson-- Chapter 1</p>
半導體元件模擬分析	<p>D. Vasileska, S. M. Goodnick, and G. Klimeck, "Computational Electronics - Semiclassical and Quantum Device Modeling and Simulation," CRC Press, 2017.</p> <p>範圍：chapters: 1-8, Appendix A, and Appendix B</p>