



# Lanston H.M. CHU

Email: [lanstonchu@gmail.com](mailto:lanstonchu@gmail.com)

   : lanstonchu

AI Scientist, Machine Learning Engineer, Software Engineer

U.K. Data Scientist, U.S. Research MS degrees holder, Hong Kong & Singapore Actuary

<b>Specializations</b>	Machine Learning, Deep Learning, Computer Vision
<b>Working Experience</b>	<p><b>Machine Learning Engineer – KX Systems &amp; First Derivatives, London (2021 – Present)</b></p> <p>Data Science team:</p> <ul style="list-style-type: none"> <li>- Machine Learning Research and Development (R&amp;D)</li> <li>- Development in <a href="#">KDB.AI</a>, the vector store powered by kdb+/q that can serve as long term memory of ChatGPT, and as pattern recognizer of time series data, e.g. market trading activities</li> <li>- Development under KX Insights, which is a cloud native platform that makes solution more scalable and robust</li> </ul> <p>Market Surveillance team:</p> <ul style="list-style-type: none"> <li>- Development for KX's financial market surveillance system powered by kdb+/q to identify market abuses for major international investment banks and stock exchanges</li> </ul> <p><b>Lecturer – Intercommon Education, Hong Kong (2021)</b></p> <ul style="list-style-type: none"> <li>- DHS 2001: Society and Artificial Intelligence</li> </ul> <p><b>Teaching Assistant – University of Wisconsin-Madison (2019 - 2021)</b></p> <ul style="list-style-type: none"> <li>- CS 539: Introduction to Artificial Neural Networks (Python)</li> <li>- Stat 324: Introductory Applied Statistics for Engineers (R)</li> <li>- Statistics Learning Center: R for Data Science</li> </ul> <p><b>Deputy Manager, Actuarial Department - Taiping Life, Hong Kong (2016 –2017)</b></p> <ul style="list-style-type: none"> <li>- Led a Team of Quantitative Analysts and Actuaries to perform profitability testing and develop life/saving insurance products with annual sales of USD 200M</li> <li>- Analyzed 10 GB Policy data in Prophet/SQL</li> <li>- Leadership: team codes generic data cleansing system yielding 2x speedup</li> </ul>

	<p><b>Assistant Manager, Actuarial Department – AIA, Singapore (2015 – 2016)</b></p> <ul style="list-style-type: none"> <li>- Policy data analysis and extraction of 50GB in SQL.</li> <li>- Data scraping in VBA to crawl an obsolete backend system, reducing 70% time in data extracting.</li> </ul> <p><b>Actuarial Assistant – HSBC Insurance, Hong Kong (2012 – 2015)</b></p> <ul style="list-style-type: none"> <li>- Streamlined data join/conversion time by 20% by reformulating the looping logic of existing codes.</li> </ul> <p><b>Trainee of Derivatives Valuation Centre - E&amp;Y Advisory, Hong Kong (2012)</b></p> <ul style="list-style-type: none"> <li>- Derivatives valuation</li> </ul> <p><b>Executive Trainee of Reinsurance Consultant – Wilson Re, Hong Kong (2008 - 2011)</b></p> <ul style="list-style-type: none"> <li>- Provide consulting services to insurance companies to secure global reinsurance support in Property and Marine businesses, from reinsurers such as Lloyd's Syndicates, Munich Re, Swiss Re, Generali, Allianz etc.</li> </ul>
<p><b>Education</b></p>	<p><b>Double MS Degrees (Research), University of Wisconsin-Madison, United States (September 2018 – August 2021)</b>  MS, Computer Science  MS, Electrical Engineering  GPA: <u>3.94/4.00</u></p> <p><b>Specialization in Generative Adversarial Networks (GANs) - DeepLearning.AI (2021)</b>  <b>Specialization in Deep Learning Certificate - DeepLearning.AI (2018)</b></p> <p><b>Université Paris-Dauphine (2011 – 2012)</b>  MS in Mathematics for Finance and Actuarial Science with Distinction</p> <p><b>The Chinese University of Hong Kong (2004 – 2007)</b>  B.SC in Mathematics</p>
<p><b>Projects</b></p>	<p><a href="#">Convex Hull Escape Perturbation at Embedding Space and Spherical Bins Coloring for 3D Face De-identification</a> (2021)  3D Facial encoding, modification, and reconstruction using deep learning autoencoder and computer vision algorithms. Python (PyTorch) and C++ using GPU (CUDA) in Docker.</p> <p><a href="#">Spherical Histogram Approximation for Maximum Flow of Brain Connectivity</a> (2021)  Bioinformatics project to construct graphs of signal flows within brains of mice. Python and JavaScript</p> <p><a href="#">Global Optimum Search in Quantum Deep Learning</a> (2020)  Designed a quantum computing algorithm for deep learning optimization</p>

	<p><a href="#">Automatic Generation of Academic Citation Graph</a> (2020) Family tree construction for selected papers. Python, Java and Wolfram Language (3 web scraping projects)</p> <p><a href="#">3D Reconstruction of Chest X-Rays</a> (2019) Converting 2D X-ray images into 3D using GAN. Python (TensorFlow/Keras) with GPU.</p> <p><a href="#">HumanGAN for Human Faces</a> (2019) Training GAN with human participants for facial synthesis. MATLAB.</p> <p><a href="#">RBF Methods for Solving Vanilla and Exotic Options from Univariate to Multivariate Dimensions</a> (2012) Numerical method for derivatives valuation</p>			
<b>Conference</b>	<p><a href="#">Machine Learning on Gun Protest Diffusions: Cluster-tree MLE Analysis</a> (Presented at Wolfram Technology Conference, October 2018, Champaign, IL)</p>			
<b>Skills</b>	<table border="0"> <tr> <td style="vertical-align: top;"> <p><b>Deep Learning</b></p> <ul style="list-style-type: none"> <li>- Python: PyTorch, TensorFlow, Keras</li> <li>- MATLAB, Wolfram Language</li> <li>- Models: CNN, RNN/LSTM, GAN</li> </ul> <p><b>Data Mining</b></p> <ul style="list-style-type: none"> <li>- Python: NumPy, pandas, sklearn</li> <li>- R: data.table</li> <li>- SQL, BigQuery</li> </ul> <p><b>Statistics</b></p> <ul style="list-style-type: none"> <li>- R: Plyr, ANOVA, MLE, GLM, Logistics regression</li> <li>- SAS and SQL</li> <li>- STATA</li> </ul> <p><b>NLP</b></p> <ul style="list-style-type: none"> <li>- Traditional: LDA topic model, tf-idf</li> <li>- Python: NLTK</li> <li>- R: tidytext, dplyr</li> <li>- Deep learning: RNN, LSTM</li> </ul> </td> <td style="vertical-align: top;"> <p><b>Machine Learning</b></p> <ul style="list-style-type: none"> <li>- Python: sklearn</li> <li>- MATLAB, R</li> </ul> <p><b>Web Scraping</b></p> <ul style="list-style-type: none"> <li>- Python: urllib, BeautifulSoup, JSON, PyMySQL, requests, socket, selenium</li> <li>- Java, Wolfram Language</li> </ul> <p><b>Web</b></p> <ul style="list-style-type: none"> <li>- Python: flask, Django</li> <li>- HTML/CSS, JavaScript, SQL, Jekyll</li> </ul> <p><b>Other Skill Sets</b></p> <ul style="list-style-type: none"> <li>- kdb+/q</li> <li>- Time series</li> <li>- Bioinformatics (Python: fasta, toytree)</li> <li>- Linux Shell Script, VBA, C/C++</li> </ul> </td> <td style="vertical-align: top;"> <p><b>Computer Vision</b></p> <ul style="list-style-type: none"> <li>- Python: OpenCV</li> <li>- MATLAB: CV Toolbox</li> </ul> <p><b>Data Visualization</b></p> <ul style="list-style-type: none"> <li>- Python: matplotlib, Seaborn</li> <li>- R: ggplot2</li> <li>- MATLAB, Wolfram Language</li> </ul> <p><b>CI/CD</b></p> <ul style="list-style-type: none"> <li>- Git, Docker/Docker-compose</li> <li>- GitLab CI</li> <li>- Kubernetes</li> <li>- Google Cloud Platform</li> <li>- Jenkins</li> </ul> </td> </tr> </table>	<p><b>Deep Learning</b></p> <ul style="list-style-type: none"> <li>- Python: PyTorch, TensorFlow, Keras</li> <li>- MATLAB, Wolfram Language</li> <li>- Models: CNN, RNN/LSTM, GAN</li> </ul> <p><b>Data Mining</b></p> <ul style="list-style-type: none"> <li>- Python: NumPy, pandas, sklearn</li> <li>- R: data.table</li> <li>- SQL, BigQuery</li> </ul> <p><b>Statistics</b></p> <ul style="list-style-type: none"> <li>- R: Plyr, ANOVA, MLE, GLM, Logistics regression</li> <li>- SAS and SQL</li> <li>- STATA</li> </ul> <p><b>NLP</b></p> <ul style="list-style-type: none"> <li>- Traditional: LDA topic model, tf-idf</li> <li>- Python: NLTK</li> <li>- R: tidytext, dplyr</li> <li>- Deep learning: RNN, LSTM</li> </ul>	<p><b>Machine Learning</b></p> <ul style="list-style-type: none"> <li>- Python: sklearn</li> <li>- MATLAB, R</li> </ul> <p><b>Web Scraping</b></p> <ul style="list-style-type: none"> <li>- Python: urllib, BeautifulSoup, JSON, PyMySQL, requests, socket, selenium</li> <li>- Java, Wolfram Language</li> </ul> <p><b>Web</b></p> <ul style="list-style-type: none"> <li>- Python: flask, Django</li> <li>- HTML/CSS, JavaScript, SQL, Jekyll</li> </ul> <p><b>Other Skill Sets</b></p> <ul style="list-style-type: none"> <li>- kdb+/q</li> <li>- Time series</li> <li>- Bioinformatics (Python: fasta, toytree)</li> <li>- Linux Shell Script, VBA, C/C++</li> </ul>	<p><b>Computer Vision</b></p> <ul style="list-style-type: none"> <li>- Python: OpenCV</li> <li>- MATLAB: CV Toolbox</li> </ul> <p><b>Data Visualization</b></p> <ul style="list-style-type: none"> <li>- Python: matplotlib, Seaborn</li> <li>- R: ggplot2</li> <li>- MATLAB, Wolfram Language</li> </ul> <p><b>CI/CD</b></p> <ul style="list-style-type: none"> <li>- Git, Docker/Docker-compose</li> <li>- GitLab CI</li> <li>- Kubernetes</li> <li>- Google Cloud Platform</li> <li>- Jenkins</li> </ul>
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<b>Professional Qualifications</b>	<p>Associate of Society of Actuaries (ASA) (since 2013)</p>			
<b>Languages</b>	<p>Native: Chinese (Cantonese, Mandarin)</p> <p>Fluent: English</p>			