

# Tony Ng

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## WORK EXPERIENCE

- AI RESEARCH SCIENTIST** **Meta** | London AUG 2024 - Present
- Multimodal (text, image, video, audio) diffusion models to [optimize ad performance](#) across Meta's platforms. Current focus: post-training (e.g. SFT, DPO, RL, model distillation to speed up ~100x).
  - Data curation pipelines from pre and mid-training (millions of images/videos – text caption pairs) to post-training (thousands of high-quality data; using rewards models / human selection).
  - Developed and implemented evaluation guidelines for assessing generation quality, covering aspects from defects to aesthetics, and successfully deployed these at scale with annotators.
  - Boosted advertiser adoption by 40% on a \$1M+ daily revenue stream by training and deploying a controllable image generation model.
- RESEARCH ENGINEER** **Synthesia** | London FEB 2023 - AUG 2024
- Controllable video diffusion models for [AI dubbing on avatars](#).
  - End-to-end research & development and deployment of *AvatarBuilder* ([link to announcement](#)) in Synthesia STUDIO for customising avatars with Gen AI.
  - System design, engineering and deployment for AI Video Generation technology at scale.
- RESEARCH INTERN** **Meta** | London JUN 2022 - OCT 2022
- Led a research agenda in the [SceneScript project](#) on multimodal understanding between text and 3D, specifically by finetuning an LLM that generates scene elements auto-regressively.
  - Created an API for internal AR/VR research, including a demo of the scene generation pipeline.
- RESEARCH INTERN** **Facebook** | Redmond, WA MAY 2021 - NOV 2021
- Led the CVPR'22 research on privacy-preserving ML using adversarial learning at Reality Labs.
  - Produced research code compatible with the Facebook (now Meta) infrastructure.
- TEACHING ASSISTANT** **Imperial College London** | London OCT 2018 - AUG 2023
- Courses: Machine Learning (Year 3), Pattern Recognition (Year 4), Deep Learning (Year 4)
  - Responsibilities: Marking and giving feedback for exams & courseworks, giving tutorials.
- VISITING STUDENT** **Scape Technologies** | London JUN 2019 - DEC 2019
- Job-shadowed Dr. Vassileios Balntas and his research team.
  - Assisted the integration of image retrieval modules into Scape's localization pipeline.
- SUMMER INTERN** **Rolls-Royce plc** | Derby, UK JUN 2016 - SEP 2016
- Set up and managed a project team of 7 specialists to resolve a disruption issue within the supply chain, with impact of approximately £120K and duration of 10 months.
  - Analysed a spreadsheet with over 650,000 entries to assess replacement risks and costs.
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## EDUCATION

- PHD** **Electrical and Electronic Engineering** | Imperial College London SEP 2018 - AUG 2023
- Research Topic: Visual localization for AR/VR using deep-learning and geometry.
  - Supervisor: Prof. Krystian Mikolajczyk, Co-supervisor: Dr. Vassileios Balntas.
  - Scholarship: Departmental Scholarship for Overseas PhD Candidates.
- MENG** **Aeronautical Engineering** | Imperial College London OCT 2014 - JUN 2018
- Thesis: "Prediction Model for Gravity Currents." Grade: 80/100.
  - Classification: First Class Honours (1:1), Average Score 78%.
  - Awards: Dean's List 2015 & 2016, Aeronautics Scholars.

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## PUBLICATIONS

- 2025** Z. Liu, W. Ren, H. Liu, Z. Zhou, S. Chen, H. Qiu, X. Huang, Z. An, F. Yang, A. Patel, V. Atliha, T. Ng, X. Han, C. Zhu, C. Zhang, D. Liu, J. Perez-Rua, S. He, J. Schmidhuber, W. Chen, P. Luo, W. Liu, T. Xiang, J. Schult, Y.n Cong. **TUNA: Taming Unified Visual Representations for Native Unified Multimodal Models.** [arXiv:2512.02014](https://arxiv.org/abs/2512.02014)
- 2022** T. Ng, H.J. Kim, V. Lee, D. DeTone, T. Yang, T. Shen, E. Ilg, V. Balntas, K. Mikolajczyk, C. Sweeney. **NinjaDesc: Content-Concealing Visual Descriptors via Adversarial Learning.** In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022.
- T. Ng, A. Lopez-Rodriguez, V. Balntas, K. Mikolajczyk. **OoD-Pose: Camera Pose Regression from Out-of-Distribution Synthetic Views.** In *International Conference on 3D Vision (3DV)*, 2022.
- 2020** T. Ng, V. Balntas, Y. Tian, K. Mikolajczyk. **SOLAR: Second-Order Loss and Attention for Image Retrieval.** In *Proceedings of the 16th European Conference on Computer Vision (ECCV)*, 2020.
- Y. Tian, A. Barroso-Laguna, T. Ng, V. Balntas, K. Mikolajczyk. **HyNet: Learning Local Descriptor with Hybrid Similarity Measure and Triplet Loss.** In *Proceedings of Advances in Neural Information Processing Systems (NeurIPS)*, 2020.
- Y. Tian, V. Balntas, T. Ng, A. Barroso-Laguna, Y. Demiris, K. Mikolajczyk. **D2D: Keypoint Extraction with Describe to Detect Approach.** In *Asian Conference on Computer Vision*, 2020.
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## CONFERENCES

- REVIEWER** **CVPR 2023:** [Outstanding Reviewer](#).  
**CVPR2025, ICLR 2022, CVPR 2022 & ECCV 2022.**  
**NeurIPS 2021 & 2022:** [Outstanding Reviewer Award](#): awarded to the top 8% of reviewers in 2021.
- CVPR 2020** **Invited Speaker at Image Matching Challenge 2020** JUN 2020  
· Lead presenter of a [top entry](#) at the challenge in [Image Matching: Local Features and Beyond](#).
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## LEADERSHIP & VOLUNTEERING

- LEADER, SINGER, ARRANGER** **The Mockingbird** | London OCT 2014 - MAR 2017  
· An acapella group, e held annual concerts in March every year with attendances in the hundreds.  
· I was mainly a bass singer, but also a song-arranger, choreographer, stage-designer, concert organiser, as well as being one of the leading figures in my third and final year with the group.
- ASSOCIATE** **Imperial College Consultancy Society** | London OCT 2016 - MAY 2017  
· Hosting and preparing materials for weekly case-study sessions with the Case-Study Group.
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## SKILLS & INTERESTS

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| <b>COMPUTING</b> | <b>High Proficiency</b> <ul style="list-style-type: none"><li>· Python, PyTorch</li><li>· Docker, k8s / kubeflow</li></ul>          | <b>Medium Proficiency</b> <ul style="list-style-type: none"><li>· CI/CD (e.g. gha, terraform)</li><li>· C++</li></ul> | <b>Basic Proficiency</b> <ul style="list-style-type: none"><li>· JavaScript</li><li>· Unix</li></ul> |
| <b>LANGUAGE</b>  | <b>Native / Fluent</b> <ul style="list-style-type: none"><li>· English</li><li>· Cantonese, Mandarin</li></ul>                      | <b>Conversational</b> <ul style="list-style-type: none"><li>· Korean</li></ul>  | <b>Basic</b> <ul style="list-style-type: none"><li>· German (B1+)</li><li>· Japanese</li></ul>       |
| <b>INTERESTS</b> | <ul style="list-style-type: none"><li>· Singing, Travelling</li><li>· Lifting weights, Tennis</li><li>· Age of Empires II</li></ul> |   |  |