linkedin.com/in/tinchev
bit.ly/gscholar-tinchev

GEORGI TINCHEV

gtinchev@robots.ox.ac.uk
00447522258598

RESEARCH

Computer Vision – Robotics – Machine Learning

EDUCATION

University of Oxford, 2017 – May 2021
PhD Student in Engineering Science (Robotics & Computer Vision), Advisor: Dr. Maurice Fallon

University of Edinburgh, 2015 – 2016
MSc in Artificial Intelligence (Merit), Advisor: Dr. Maurice Fallon

University of Aberdeen, 2011 – 2015
BSc Computing Science (First class), Advisors: Dr. Martin J. Kollingbaum, Prof. Wamberto Vasconcelos

KEY PUBLICATIONS

(full list on page 2)

𝕏Resolution Correspondence Networks
(In review), arXiv.org, 2021.
G. Tinchev, Shuda Li, Kai Han, David Mitchell, Rigas Kouskouridas

SKD: Unsupervised Keypoint Detecting for Point Clouds using Embedded Saliency Estimation
(In review), arXiv.org, 2020.
G. Tinchev, A. Penate-Sanchez, M. Fallon

Learning to See the Wood for the Trees: Deep Laser Localization in Urban and Natural Environments on a CPU
IEEE International Conference on Robotics and Automation (RAL+ICRA), 2019.
G. Tinchev, A. Penate-Sanchez, M. Fallon

PROFESSIONAL EXPERIENCE

Computer Vision Scientist Intern
XYZ Reality, London, United Kingdom; October 2020 – May 2021
Developed state-of-the-art models for correspondence networks in image data in PyTorch.
Evaluated SfM methods on numerous datasets, such as HPatches, InLoc, Aachen Day-Night.
Compared SOTA SLAM methods for AR/VR & AV navigation, e.g. ORB-SLAM3, FAB-MAP, LeGo-LOAM

Applied Scientist Intern
Amazon Research, Cambridge, United Kingdom; November 2019 – August 2020
Conducted statistically relevant experiments while analyzing state-of-the-art text-to-speech models.
Improved the computational efficiency of deep learning models.
Worked in a team to help design, develop and run large scale models from prototype into production.
Experimented with generative models for speech generation.

Software Developer
Ikiji Ltd, Aberdeen, United Kingdom; June 2013 – November 2018
Designed solutions satisfying clients' needs, building them with PHP frameworks like Laravel.
Configured and maintained multiple AWS instances and backup solutions.

TECHNICAL SKILLS

Computer Vision
Evaluated state-of-the-art 6DoF registration algorithms.
Designed and optimized architectures for real-time operation of a global localization system.
Analyzed keypoint detection and segmentation methods on both images and point clouds.
Led a project to evaluate and improve rotation invariance of point cloud-based networks.

Robotics
Implemented scalable deep learning models with TensorFlow on both Python and C++.
Led the development of C++ real-time SLAM application in challenging environments.
Developed a dataset of aligned LiDAR by fusing sensor information from GPS, VO & loop closures.
Conducted experiments in close loop operation on NASA Valkyrie, Clearpath Husky, ANYmal robots.
Implemented multirobot communication with LCM, ROS, and MOOS frameworks.
Engineered visualization software for perception applications using OpenCV, Eigen, Boost libraries.

Machine Learning
Evaluated and implemented state-of-the-art generative models for image & speech synthesis in MxNet.
Developed statistical methods for predictive analysis decreasing the computation time for localizing.
Conducted statistical analysis and implemented visualization tools to illustrate experimental results.

PATENTS

Localization of a Mobile Apparatus (Application No. GB1902493.4, Publication Date: 10/04/2019)
Configuration method for the display of a building information model (Application No. 2104720.4, Filed Date: 01/04/2021)

INTERESTS

Sports: Captain of the national and blues (1st) volleyball teams at the University of Oxford; Oxford, UK
2nd place at a 3* UK Beach Tour, England, UK, 2019
5th place at student beach volleyball championships at BUCS; UK, 2018
Reading: I enjoy reading fantasy novels, such as The Kingkiller Chronicle, The Witcher.
Interests: Skiing, Mechanical Keyboards, Hiking
Reviewer: CVPR, ICCV, RAL+ICRA, TRO, IROS, ICRA, ITSC

PUBLICATIONS
(chronological order)

𝕏Resolution Correspondence Networks
(In review), arXiv.org, 2021.
G. Tinchev, Shuda Li, Kai Han, David Mitchell, Rigas Kouskouridas

Universal Neural Vocoding with Parallel WaveNet
IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2021.
Yunlong Jiao, Adam Gabrys, **Georgi Tinchev**, Bartosz Putrycz, Daniel Korzekwa, Viacheslav Klimkov

SKD: Unsupervised Keypoint Detecting for Point Clouds using Embedded Saliency Estimation
(In review), arXiv.org, 2020.
G. Tinchev, A. Penate-Sanchez, M. Fallon

Real-time LIDAR localization in natural and urban environments
(In Review), 2020.
G. Tinchev, A. Penate-Sanchez, M. Fallon

Online LiDAR-SLAM for Legged Robots with Robust Registration and Deep-Learned Loop Closure
IEEE International Conference on Robotics and Automation (ICRA), 2020.
M. Ramezani, **G. Tinchev**, Egor Iuganov, Maurice Fallon

Learning to See the Wood for the Trees: Deep Laser Localization in Urban and Natural Environments on a CPU
IEEE International Conference on Robotics and Automation (RAL+ICRA), 2019.
G. Tinchev, A. Penate-Sanchez, M. Fallon

Seeing the Wood for the Trees: Reliable Localization in Urban and Natural Environments
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2018.
G. Tinchev, S. Nobili, M. Fallon

Predicting Alignment Risk to Prevent Localization Failure
IEEE International Conference on Robotics and Automation (ICRA), 2018.
S. Nobili, **G. Tinchev**, M. Fallon