Title:
Ichthyoplankton Classification using Generative Adversarial Networks and Transfer Learning

Presenter:
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Abstract:
I will describe the implementation of a tool for the classification of ichthyoplankton images. While there exist numerous methods for image classification, ichthyoplankton introduces a unique set of challenges: (i) the training set is very small; (ii) there is considerable imbalance in the distribution of training data among classes; and (iii) most ichthyoplankton images look very similar due to lack of color or other distinguishing features. To address these challenges, we developed a novel approach that combines ideas from dataset augmentation, generative adversarial networks and transfer learning in deep neural networks. Our approach outperforms by a large margin all existing methods in all accuracy metrics.

Bio:
Panos Kalnis is Professor and Chair of the Computer Science program at the King Abdullah Univ. of Science and Technology (KAUST). In 2009 he was visiting assistant professor at Stanford University. Before that, he was assistant professor at the National University of Singapore (NUS). In the past he was involved in the designing and testing of VLSI chips and worked in several companies on database designing, e-commerce projects and web applications. He has served as associate editor for the IEEE Transactions on Knowledge and Data Engineering (TKDE) from 2013 to 2015, and on the editorial board of the VLDB Journal from 2013 to 2017. He received his Diploma from the Computer Engineering and Informatics Dept., Univ. of Patras, Greece in 1998 and his PhD from the Computer Science Dept., Hong Kong Univ. of Science and Technology (HKUST) in 2002. His research interests include Big Data, Cloud Computing, Parallel and Distributed Systems, Large Graphs and Long Sequences. 
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