

SEEWIESEN

LECTURE SERIES

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Max Planck Institute
for Ornithology



MAX-PLANCK-GESELLSCHAFT

THURSDAY | November 15th, 2018 | 13 P.M. | HOUSE 4 LECTURE ROOM

KALLE ÅSTRÖM

Lund University | Host: Görlitz Research Group

3D positioning and mapping using sound (and other sensors)

The structure from motion problem in computer vision is the problem of determining camera position and orientation as well as the 3D positions of scene features using the motion of image features only. The analogous problem for audio and radio is the problem of determining sender and receiver positions using the received audio or radio signal only. For both video, audio and radio there are a number of challenges, e.g. feature detection, robust feature matching and robust parameter estimation. The problem is challenging also because of the non-linear nature of the problem. In the talk a summary of results of both theoretical and applied nature is presented.

WHO IS KALLE ÅSTRÖM?

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|------|-------------------------------------------------------------|
| 1996 | Ph.D., Lund University, Sweden |
| 1997 | Postdoctoral fellowship Lund University, Sweden |
| 2000 | Research and Development, Decuma, Sweden |
| 2000 | Associate professor of Mathematics, Lund University, Sweden |
| 2002 | Prof of Mathematics, Lund University, Sweden |

SELECTED PUBLICATIONS

- Li, X, Batstone, KJ, Åström, K, Oskarsson, M, Gustafson, C & Tufvesson, F 2018, Robust Phase-Based Positioning Using Massive MIMO with Limited Bandwidth. in 28th Annual IEEE International Symposium on Personal, Indoor and Mobile Radio Communications, PIMRC 2017
- Flood, G, Heyden, A & Åström, K 2018, Estimating Uncertainty in Time-difference and Doppler Estimates. in ICPRAM 2018 - Proceedings of the 7th International Conference on Pattern Recognition Applications and Methods - Volume 1: ICPRAM. SciTePress, pp. 245-253
- Larsson, V, Åström, K & Oskarsson, M 2017, Polynomial Solvers for Saturated Ideals. in 2017 IEEE International Conference on Computer Vision (ICCV). IEEE
- Larsson, V, Åström, K & Oskarsson, M 2017, Efficient Solvers for Minimal Problems by Syzygy-based Reduction. in IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
- Burgess, S, Åström, K, Högström, M, Lindquist, B & Ljungberg, R 2016, Smartphone Positioning in Multi-Floor Environments Without Calibration or Added Infrastructure. in 2016 International Conference on Indoor Positioning and Indoor Navigation (IPIN).

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