

# Ian R. Marsh (ianmarsh.org)

## EMPLOYERS

*RISE (formerly Swedish Institute of Computer Science) AB, 1995-present.* Telecommunications, automotive and machine learning for 25+ years. Significant involvement with many industry-led projects. Reverse chronologically, Edge computing, road traffic flow, Knowledge representation efforts in 20/2021. Co-author of the CheesePi measurement initiative. Older work on caching, real-time Internet, including kernel queuing algorithms (WFQ). New network architectures. As an ML scientist analysed large datasets, Orange Labs' 3 months French cellular network accesses, the Swedish road traffic agency's 12 years of traffic flow measurements. Supervised 20+ students.

*IBM, Germany GmbH, 1993-1995.* Early streaming protocols for the Internet. IBM (DE), SICS (SE) and BBN developed ST-II, alias IPV5. From device driver to web apps developed a complete streaming protocol suite, a conferencing tool to support Germany's Bonn → Berlin transition.

*CSIRO, Australia, 1990-1992.* Statistics and code for Australian industries. Added new routines to Splus (now R) plus its' first graphical interface. Novel image processing routines as well.

*3D Pixel Labs Ltd, UK (now nVidia), 1989-1990.* Microcoded a 3D-graphics engine, based on a bitslice architecture, combining both pixel & vector graphics. Extended the bit-slice architecture to an Single Instruction Multiple Data, together with a specialised graphics language called Pixel C.

## SELECTED PROJECTS

ANIARA 2020, Edge computing coordinated by Ericsson Sweden, investigating latency; lightweight containerisation. TENS 2018-2021 Emissions and traffic flow financed by the Swedish Energy authority., LCM 2019-2021 Digital twins and knowledge representation. BADA, traffic flow analysis with Scania & Volvo. Earlier projects on caching, network architectures, BSD kernel changes for a real-time Internet. READY, 2017, 5-year, 3-partner project on latency reduction. PhD around real time voice communications with aspects of statistical analysis, an open source tool, measurements kernel queuing and distributed file systems (see publications and past students)

## ACADEMIC DEGREES

- PhD in Electrical Engineering, Sweden 2009.
- MSc in Computer Science, Manchester University 1988.
- BSc in Physics and Computer Science, Manchester Metropolitan University 1987.

## SELECTED PUBLICATIONS

- I. Marsh et. al, Evolving 5G: ANIARA, an Edge-Cloud perspective, Computing Frontiers, 2021.
- I. Marsh, Dimensionality reduction in (large) measurement datasets, 2020.
- I. Marsh, Ahmad Al-Shishtawy, Björn Bjurling, 12 years of traffic flow data, 2019.
- I. Marsh, Understanding cache dynamics in the network: a software approach, 2016.
- I. Marsh, VANET communication: A traffic flow approach, 2012.