

Overview of my PhD Research

Abstraction Level	Systems		Algorithm	HW-SW Co-Design	Systems and Architecture				Architecture															
Domain	Autonomous Drones		Machine Learning in Edge				Mobile Robots		Graph and HPC															
Challenges	Unknown tradeoffs	Lack of open-source platforms	Heavy computation and large amount of data to be processed with restricted resources						Dealing with large amount of data		Unknown tradeoffs													
My Contributions	Quantifying tradeoffs and computation profile	Releasing an open-source platform for drone	Developing new distributed computing methods		Exploiting hardware-software synergy	Integrating new robust computing methods for DNNs	Guaranteeing real-timeliness and effectively handling several tasks	Computing power efficiently in robots	Processing where data resides			Quantifying tradeoffs and computation profile												
Broad Impacts	Facilitating tasks in aerial mapping, exploration, military, disaster recovery, ecology, rescue, and entertainment		Better data utilization, integration, and comprehension in the edge for application such as smart cities, autonomous cars, cellphones, IoT, healthcare, agriculture, construction, rescue, and mapping						Large scale, critical, and super-slow tasks such as vaccine development, and timely prediction of natural disasters such as hurricanes and earthquakes															
Publications	ASPLOS'21		In progress	SIGMOD'22	IROS'18	IoTJ'20	arXiv	IEEE Micro'19 DAC'19	IISWC'19+ PEARC'19	ICCD'20 FCCM'20	DAC'19 arXiv	DAC'21 arXiv	DAC'20	ASPLOS'20	TACO'18	HPCA'20	HPCA'21	HPCA'17	TACO'17	IPDPS'18	JPDC'19	IISWC'17	ISPASS'18	IISWC'21+
Reference #	1		2	3	4	5	6,7	8,9	10,11	12,13	14,15	16--18		19	20,21	22	23	24	25	26,27	28,29	30		