

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

[Reference # can be found in below References PDF][+ : Best paper nominee]