ITSP Podcast Info Template

Questions for Dr. Olaf Storaasli!

What is Olaf Storaasli's **Title & company** name? Dr, Oak Ridge National Lab (ORNL)*

*Official ORNL Tour Guide (former ORNL Distinguished Research Scientist) &

(35-year NASA Langley Career as Structures Directorate Senior Research Engineer)

What's Olaf Storaasli's **Twitter handle**? https://twitter.com/olafva
What's Olaf Storaasli's company's Twitter handle? https://twitter.com/ORNL
What's Olaf Storaasli's LinkedIn profile? Olaf O. Storåsli
What's Olaf Storaasli's Facebook profile? Olaf Storåsli
What's Olaf Storaasli's YouTube channel? Olaf Storaasli
What's Olaf Storaasli's email address? olaf@cox.net & OlafTN@gmail.com

(Or publisher/manager. Notify when episode published). NASA web server has publications.

Name or title of the first resource? **Website**: OlafTN.com
Publications olaftn.com/AllPubs.html (books +150 journal publications & research papers)
What is the **un-gated link** to the resource? OlafTN.com
Additional resources from Olaf? Wikipedia: Olaf Storaasli en.wikipedia.org/wiki/Olaf_Storaasli

Questions for you!

What is the suggested publication date? ASAP
What is the title for this episode? **Supercomputing Analysis for NASA Missions**

What's a teaser summary for this episode? (Consider this the 1st sentence [or two] (max 200 chars) for this episode. To stand on its own as preview of what listener will hear AND ALSO begin the full story people can read in show notes ... which you will provide in the next step.)
From Growing up on the Canadian Prairies to enabling NASA's successful Viking Mars Landers, speeding Space Shuttle Analyses via fast Supercomputing algorithms & helping the U.S to lead the world in High-Performance Computing.

Thanks for summary! Add more to show notes & continue story from teaser in previous step)
Son of a theologian & Seminary President, Olaf followed in the footsteps of his uncle (MIT EE), who with Nobel Physics Laureate Ernest Lawrence designed Calutrons to obtain Uranium 235 used to end WW2 bring worldwide PEACE.
Olaf joined NASA Langley & introduced Finite Element Technology to Structural Analysis just when Supercomputers enabled it's practical use for complex analysis of aerospace vehicles. Olaf's research led NASA to develop NASTRAN, He used an early prototype to obtain accurate structural static, dynamic & frequency response for the 1st successful Viking Mars landers in 1976. Altho a PhD ME, he envisioned computers would soon revolutionize Structural analysis. He led the way heading a hardware-software-systems-application R&D team who built the 1st NASA-developed Parallel Computer, the Finite-Element Machine (FEM). NASA's FEM led the way & industry soon introduced a plethora of parallel computers which now dominate supercomputing. Olaf's General-Purpose Parallel Solver evolved with considerable advances from FEM parallel processors to Cray Supercomputers to speed Space Shuttle SRB FEM analysis of a 54,000 doc model from hours to seconds, a performance exceeding 1 petaflop for the 1st time resulting in Cray awarding Olaf & his team with the GIGAFLOP Award at a banquet at the Annual

Supercomputimg Conference in 1989. The GPS solver was in great demand in industry and used widely in aerospace, automotive, hip, building, acoustics, commercial finite element codes as well as NASA's in-house analysis codes. Olaf led an R&D project to replace CPUs with Field-Programmable Gate Arrays (FPGAs) to achieve Hypercomputer performance leading to a $15M NASA Reconfigurable Space Computer project. Olaf was recruited by ORNL's Future Technology Group to help R&D for future Supercomputers with industry, some incorporating FPGAs. Olaf's work at ORNL has helped maintain U.S. worldwide dominance in Supercomputing, as NASA did in the past. Olaf continues consulting, giving invited talks & serves as one of two active official ORNL tour guides for college & high school students pursuing science & technology careers.

Any additional notes we'll need for production? (These notes won't be published but are for us to know on the back end of production)

I can think of many additional items & hope update this. I'm sending this now for Charlie's initial feedback & comments, hoping to revise this as appropriate.

Any resources you want to share?

1. Website: **OlafTN.com**

2. NASA Retirement: Lessons Learned

3. LAA Talk: Life After Langley: Supercomputing,

4. Hometown newspaper: Saskatoon Star Phoenix (Canada)

5. TV Clips: Mars landing, COVID19 vaccine trial volunteer

6. ***Computing at the Speed of Thought*** 10/04. Aerospace America Cover Issue