

Several early pictures in Seattle: Trip to Olympic Peninsula



Several early pictures in Seattle



Paper with Advisor H. M. Swarm

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Lunar Tidal Variations in the Ionospheric Layers*

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It has been known for many years that the ionospheric layers are subject to tidal variations. In order to explain how lunar tidal variations affect the ionosphere, we need to know the meaning of the word *tide* and to understand the behavior of the ionosphere. Although tides are commonly associated with the oscillatory motion produced in the ocean by the gravitational pulls of the moon and the sun, the same term is applicable to the atmospheric movements. However, there is a fundamental difference between ocean and atmospheric tides. The movements of the water are mainly horizontal, whereas in the atmosphere the movements

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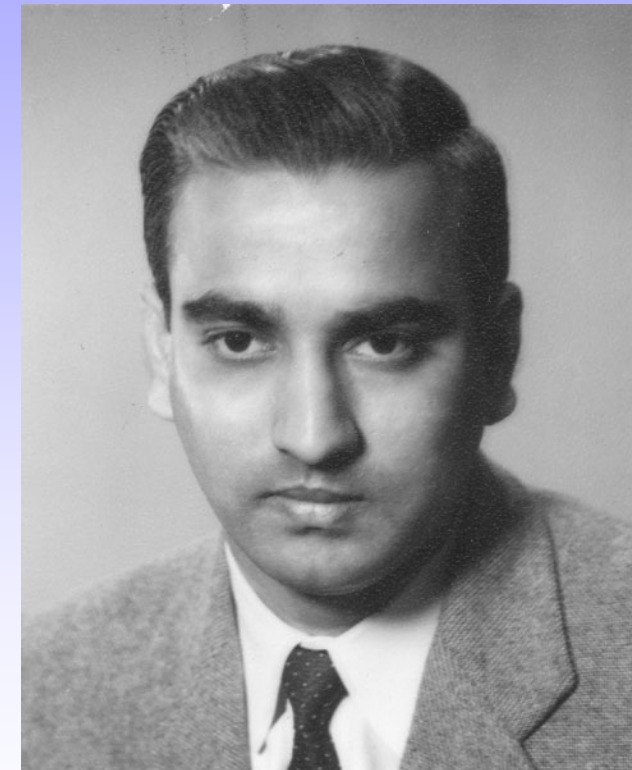
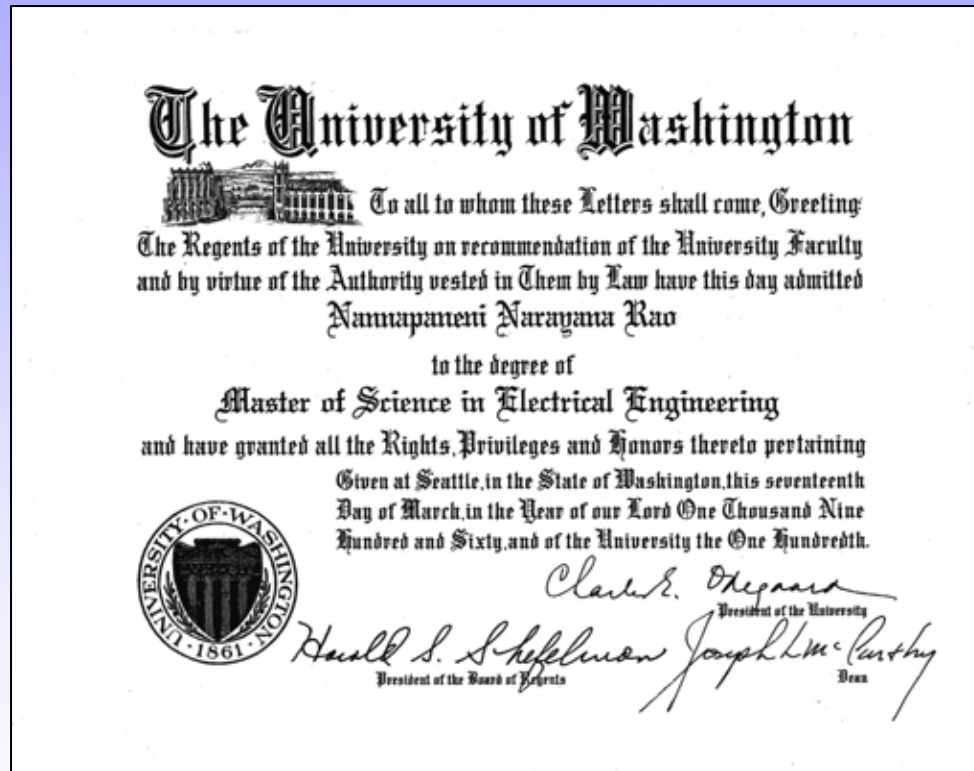


H. M. Swarm

maximum electron density of a layer and the angle of incidence of the wave upon the layer, the wave may penetrate through the layer. The highest vertically incident wave frequency that can be reflected from the height of maximum ionization density of any layer is defined as the "critical frequency" of that layer. The critical frequency is hence dependent upon the value of maximum ionization density of the layer.

The purpose of this paper is to evaluate theoretically the effects of lunar tides upon the ionospheric parameters and to compare the theoretical with the experimental results.

M.S. (EE), 1960



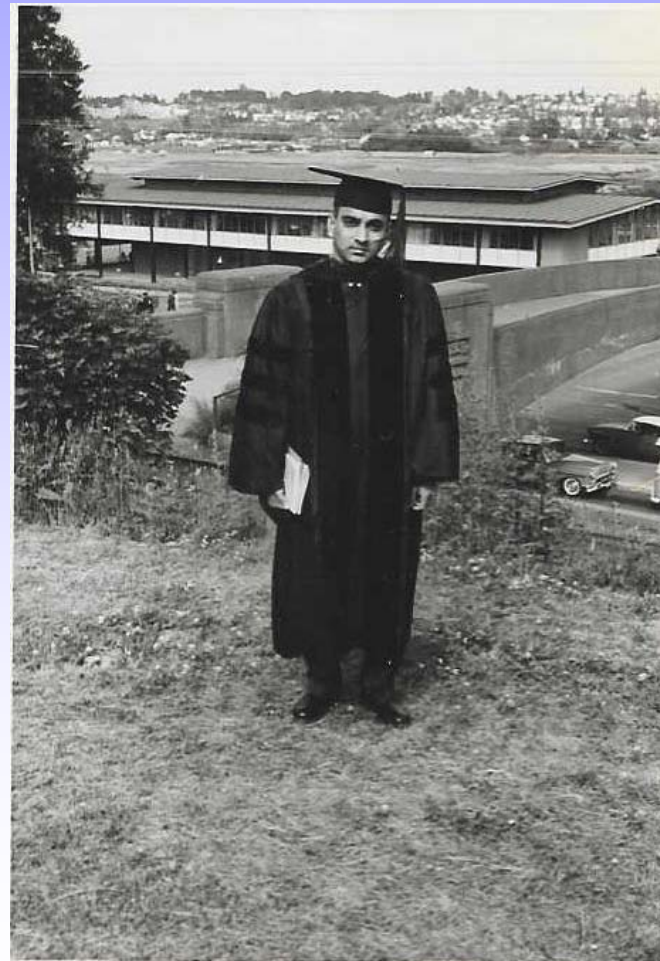
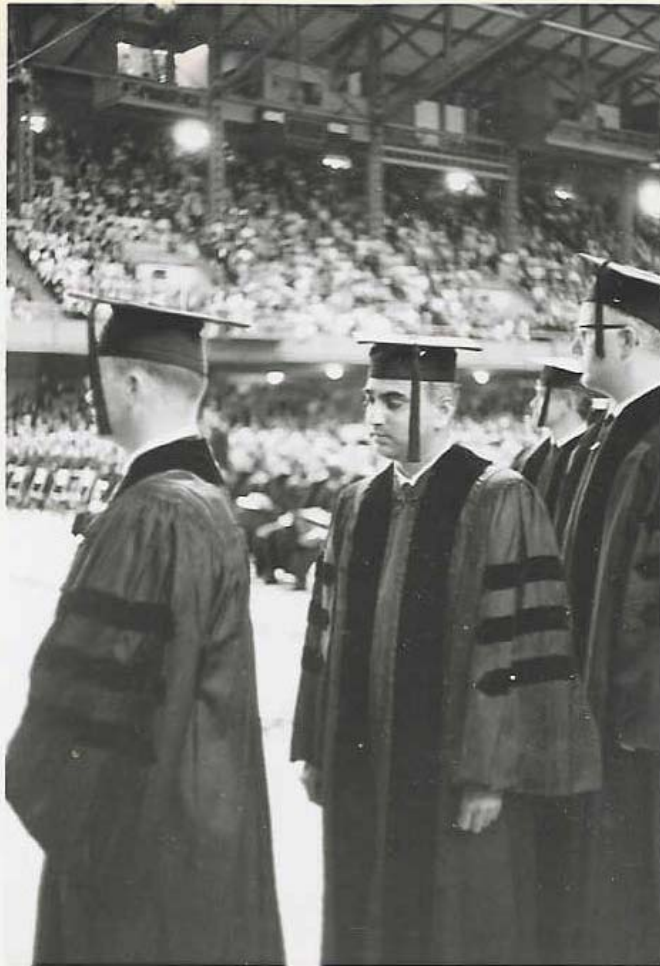
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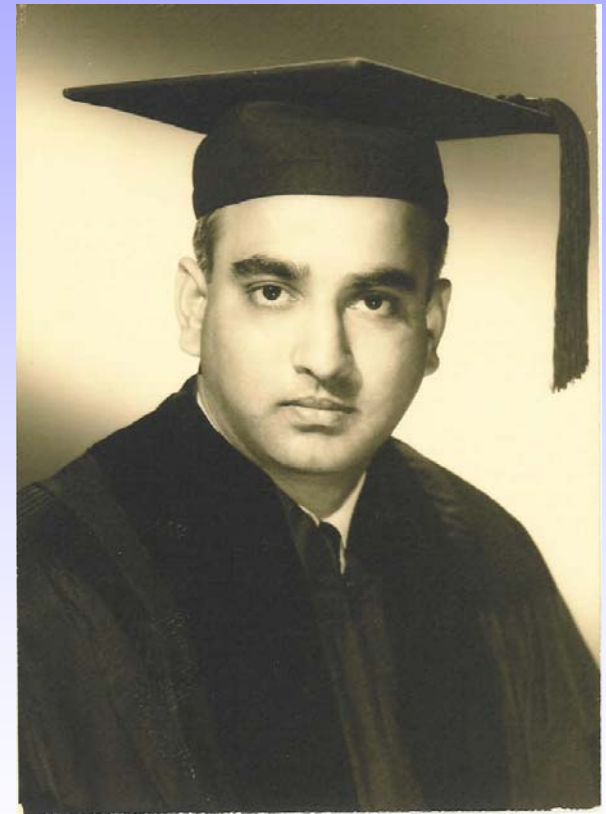
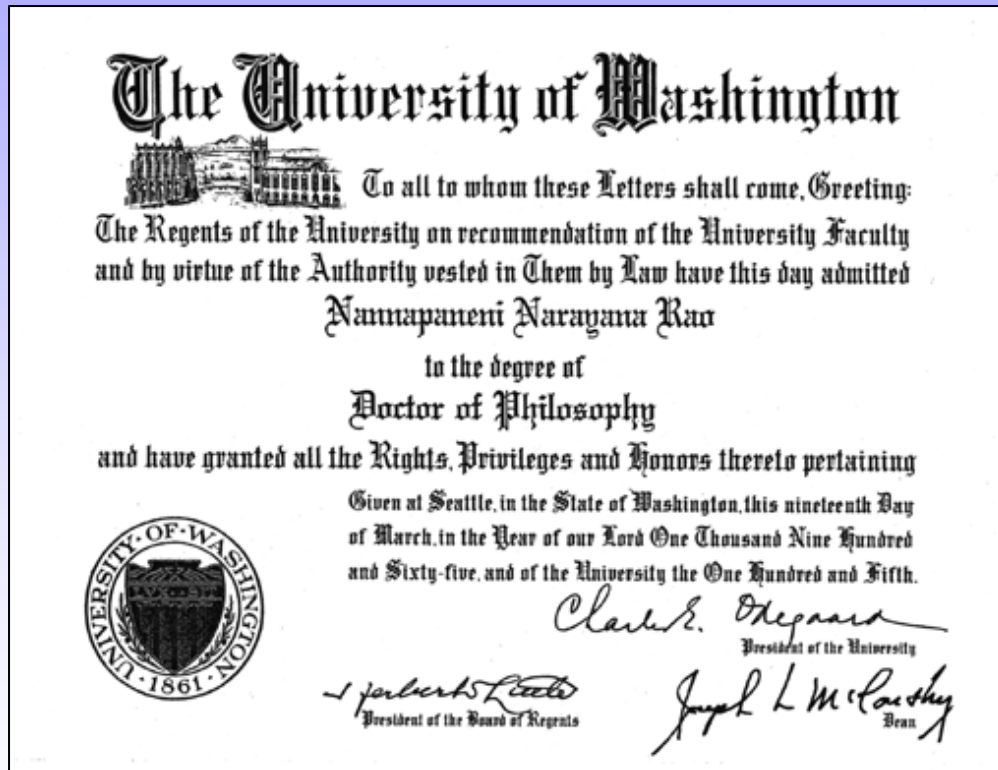
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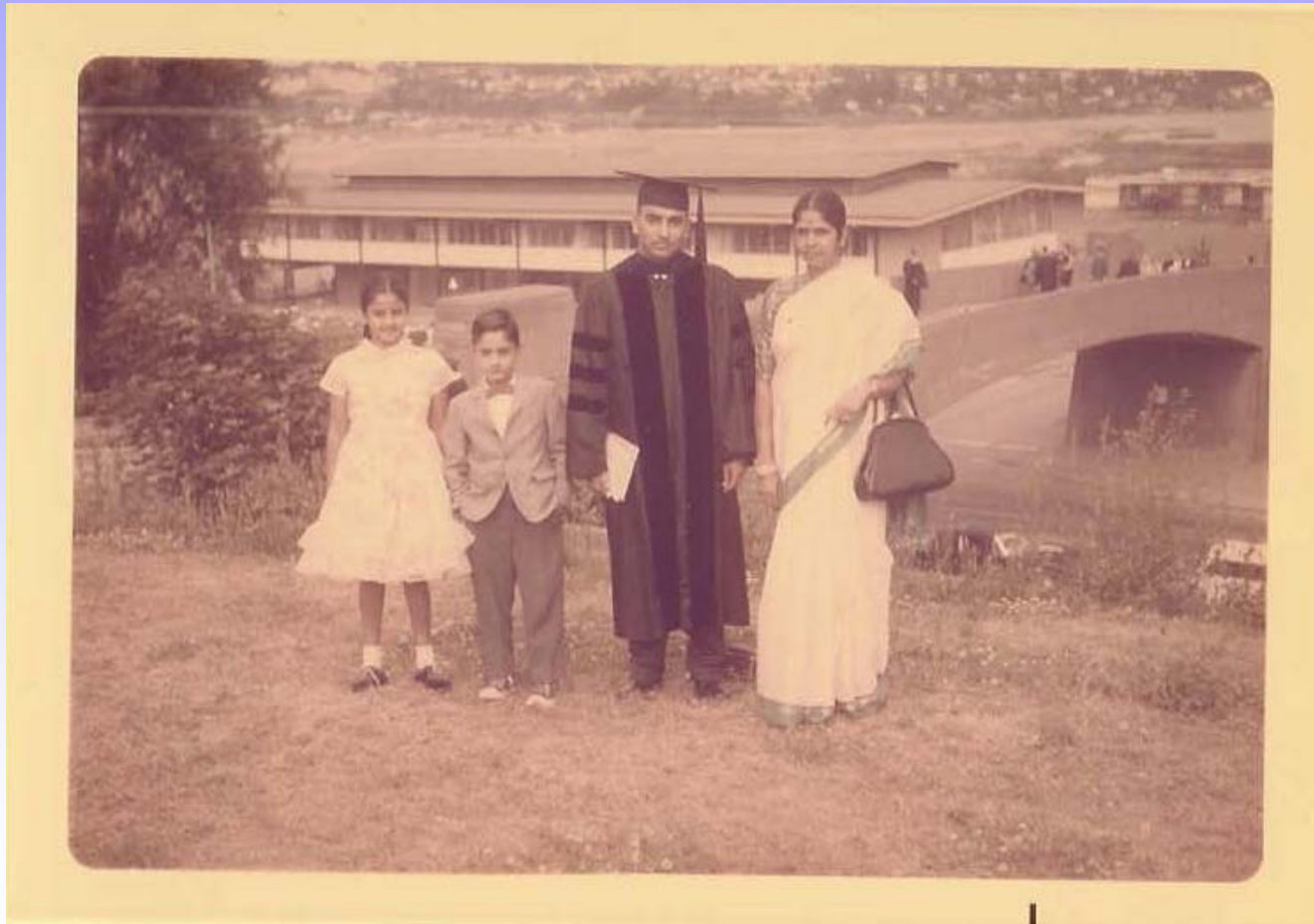
Graduation with Ph.D. in 1965



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1965 UI Offer Letter from E. C. Jordan, Head, with copy to W. L. Everitt, Dean



DEPARTMENT OF ELECTRICAL ENGINEERING | UNIVERSITY OF ILLINOIS, URBANA, ILLINOIS
61803

June 15, 1965

Dr. Nannapaneni Narayana Rao
3403 Cashmere Place, N. E.
Seattle, Washington 98105

Dear Dr. Rao:

We are pleased to offer you a position as Assistant Professor of Electrical Engineering at a salary of \$8500 for the academic year of nine months commencing September 1, 1965. Compensation for summer teaching or research is additional at the rate of 2/9's of the annual salary for two months service. This position would be for teaching and for research in the general area of radio wave propagation.

If you have any further questions concerning this position, I should be glad to try to answer them. Since I expect to be out of town for a period after June 23, it might be best to call me if you have any questions.

We look forward to receiving your favorable reply.

Yours sincerely,
E. C. Jordan
E. C. Jordan
Head of Department

ECJ:hc

cc: Dean W. L. Everitt

