

# Comment on “Catching the Network Science Bug” by David L. Alderson

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I once began a decision analysis tutorial by saying, “Hi, I’m Lee, and I’m an optimizer. I haven’t optimized in six months.” That was a long time ago, but the picture hasn’t changed much. I have always been drawn to optimization, and did my dissertation research in NLP under Fiacco and McCormick. I still fancy myself an optimizer, but in all honesty I find myself doing a lot more DA, simulation, and, of course, managing. So I was pleased to have the opportunity to read David Alderson’s article on network science. Honestly, I hadn’t yet witnessed the bifurcation of network-based analysis into network science and traditional OR network optimization, but Dr. Alderson makes a compelling case.

Network science must seem like a new frontier to the physicists, statisticians, and graph theorists making these recent, exciting contributions. Finding that one can adapt one’s science to such a prevalent structure in nature is gratifying. It seems the confusion arises when the application of these theoretical advances runs into some of the practical problems presented by real-world networks. Perhaps, too, the rewards of theoretical advances have caused network science to get out in front of the application headlights, so to speak. This isn’t unusual, or altogether bad. As I recall, Boolean algebra was an interesting theoretical diversion until later technical developments led to fairly widespread application. Anyway, Dr. Alderson’s paper strikes me as an evenhanded discourse on the current state of network science and its relationship, actual and potential, with OR-based network optimization. Its approach certainly differs from Barnett’s “Optimal Control of the B/B/C Queue”, *Interfaces* Vol. 8 No. 4, August 1978 (though it’s not as funny), which I believe took a gentle poke at the sacrifice of applicability for theoretical elegance.

Dr. Alderson’s tone is one of encouragement, for both network science and OR practitioners, and his paper is worthy of discussion by all. He encourages network scientists to pay close attention to the applicability of their advances, and he encourages operations researchers to look for ways to apply our network optimization tools to the wide-ranging challenges brought forth by our network science brethren. Through collaboration we can make both fields stronger, and avoid “dueling models” and contradictory results that help no one.

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