

Yashwant Malaiya to Isaac Newton and Beyond:
A lineage of academic inheritance

Yashwant K. Malaiya

I was surprised to hear about the academic lineage of my colleagues Indrajit and Indrakshi Ray going back to some famous mathematicians, Lagrange, Laplace, Euler etc. and further back. They have an advantage – their advisor was trained as a mathematician, and mathematics is the oldest of sciences. My own PhD is in Electrical Engineering, a very new field. Still, I decided to try to see what I can dig out.

My advisor Prof. Stephen Y.H. Su¹ has long retired and I have lost contact with him. However, I remembered that he used to refer to a book written by his advisor [Donald L. Dietmeyer](#) of University of Wisconsin. I found an email address for him, where he is listed as an Emeritus Professor. I did not know if he still uses email, or if he is still alive. I tried sending him an email anyway.



Donald L. Dietmeyer

Much to my amazement I received an email from Prof. Dietmeyer the next day.

Professor, my thesis title is: A Numerical Description of Logic Circuits, and Associated Methods for Analysis and synthesis, 1959.

¹ Another of Prof. Su's student is Ch Lai Huang, a coinventor of [Verilog](#). He worked on hardware description languages for his PhD, I was on his committee at Binghamton. That was an interest that Prof Su picked up from his advisor.

My advisor was Charles Henry Davidson. He and Gene Amdahl were graduate students in the Physics Department but no one there was interested in their interests. They found a home in the Electrical Engineering Department and were given support for the design, construction and programming of the WISC computer (Wisconsin Integrally Synchronized Computer.) Probably Professor Harold Peterson gave advise and support. I have no idea who signed papers however. Davidson worked on software; Amdahl did hardware design. When I joined in 1954 construction was well underway.

I was happy to know that my advisor³ was a pioneer and I have a connection to [Gene Amdahl](#), famous for Amdahl's law among other things. I was able to find Davidson's PhD Dissertation and discovered that his advisor was William W. Beeman also of UV Wisconsin.

There is no telling what you discover on the internet. I was suddenly connected to a long line of scholars. To start I found:

- Joseph John Thomson, (1856 - 1940), 1906 Nobel Prize winner, Cambridge, who advised-
- Owen Willans Richardson, (1879 – 1959), 1928 Nobel Prize Winner, Cambridge, who advised-
- Arthur Holly Compton, (1892 - 1962), 1927 Nobel Prize Winner, Washington University, who advised-
- Joyce Alvin Bearden, Physics (1911-1987) Johns Hopkins, who advised-
- William Waldron Beeman (1911 - 1987) University of Wisconsin, Madison, who advised-
- Charles Henry Davidson, PhD 1952, UW Madison (Physics) who advised-
- Donald Dietmeyer, PhD 1959, UW Madison (Physics) who advised-
- Stephen Y. H. Su, PhD 1967, UW Madison (Electrical Eng.) who advised-
- Yashwant K. Malaiya, PhD 1978, Utah State University (Electrical Eng.)

It turns out that many scholars had multiple advisors. Thus the lineage turns out to a tree branching as I go back in time. Thus Joseph John Thomson has four predecessors including [Lord Rayleigh](#) of Cambridge (1904 Nobel Prize) and William Davidson Niven, who was advised by [James Clark Maxwell](#) famous for his equations in electro-magnetism.

Incidentally Lord Rayleigh had students [Jagadish Chandra Bose](#) (Radio Science / Wireless) of Calcutta and [Meghnad Saha](#), whose book Treatise on Heat, was a textbook I used as an MSc Physics student.



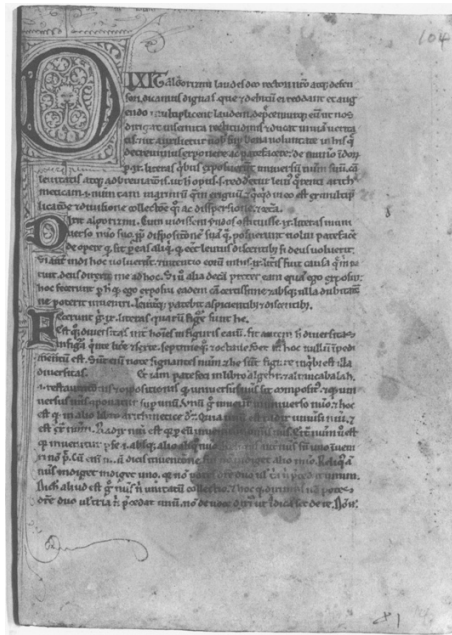
Isaac Newton, Westminster Abbey

That was just the beginning. From Maxwell to [Isaac Newton](#) (FRS in 1672) was 9 steps. From Newton to [Galileo Galilei](#) (Chair of Mathematics at Pisa) was 4 steps. From Galileo to [Johannes Argyropoulos](#) of Florence during Renaissance was 6 steps. [Leonardo da Vinci](#) (who invented hypothetical flying machines in 1488-9) was a student of Johannes.



John Argyropoulos (with beard) Cappella Sistina, Vatican

The lineage then goes back to [Manuel Bryennius](#) (1300s) in Constantinople. From him to [Sharaf al-Din al-Tusi](#) of Tus (1113-1213) in 7 steps. There must be a line going from al-Tusi to [al-Khwarizmi](#) (9th cent.) since they are from the same region in Central Asia although I have not figured it out yet. Al-Khwarizmi's *Zīj al-Sindhī* is based on a text by Brahmagupta (598-668) who described gravity in 628 and his *kitāb al-ḥisāb al-hindī* is based on some unknown Indian sources.



Algorithmi de numero Indorum (al-Jam wal-tafriq bi hisal-al-Hind)

Some other branches connect a lineage to the Benedictines. It is interesting to note that engineering lineages go back to [Thomas Alva Edison](#) and no further (see below), who was essentially self-taught.

I can say that I have inherited scholarship from numerous individuals who have lived in many different countries. They lived during different periods including the [Industrial revolution](#), the [Renaissance](#), [Byzantine Empire](#), the [Islamic Golden Age](#) and the Gupta period, the [Golden Age of India](#).

अज्ञानतिमिरान्धस्य ज्ञानाञ्जनशालाकया ।
चक्षुरुन्मीलितं येन तस्मै श्रीगुरवे नमः ॥

Detailed lineages

Connection from [Yashwant K. Malaiya](#) to [James Clerk Maxwell](#):

11 steps:

[James Clerk Maxwell](#) (University of Cambridge)(Physics Tree)

|
| (trained post-doc)

[Arthur Schuster](#) (University of Manchester)(Physics Tree)

|
| (trained research scientist)

[Ernest Rutherford](#) (University of Cambridge)(Physics Tree)

|
| (grad student for)

[Joseph John Thomson](#) (University of Cambridge)(Physics Tree)

|
| (trained grad student)

[Owen Willans Richardson](#) (University of Cambridge)(Physics Tree)

|
| (trained grad student)

[Arthur Holly Compton](#) (Washington University, Saint Louis)(Physics Tree)

|
| (trained grad student)

[Joyce Alvin Bearden](#) (Johns Hopkins University)(Philosophy Tree)

|
| (trained grad student)

[William Waldron Beeman](#) (University of Wisconsin, Madison)(Chemistry Tree)

|
| (trained grad student)

[Charles Henry Davidson](#) (University of Wisconsin, Madison)(Computer Science Tree)

|
| (trained grad student)

[Donald Dietmeyer](#) (University of Wisconsin, Madison)(Computer Science Tree)

|
| (trained grad student)

[Stephen Y. H. Su](#) (Utah State University)(Computer Science Tree)

|
| (trained grad student)
|
[Yashwant K. Malaiya](#) (Colorado State University)(Computer Science Tree)

Connection from [James Clerk Maxwell](#) to [Isaac Newton](#):

9 steps:

[Isaac Newton](#) (Royal Society of London)(Physics Tree). (1642 - 1727)

|
| (trained grad student)
|
[Roger Cotes](#) (University of Cambridge)(Physics Tree)
|
| (trained grad student)
|
[Robert Smith](#) (University of Cambridge)(Physics Tree)
|
| (trained grad student)
|
[Walter Taylor](#) (University of Cambridge)(Physics Tree)
|
| (trained grad student)
|
[Stephen Whisson](#) (University of Cambridge)(Physics Tree)
|
| (trained grad student)
|
[Thomas Postlethwaite](#) (University of Cambridge)(Physics Tree)
|
| (trained grad student)
|
[Thomas Jones](#) (University of Cambridge)(Physics Tree)
|
| (trained grad student)
|
[Adam Sedgwick](#) (University of Cambridge)(Physics Tree)
|
| (trained grad student)
|
[William Hopkins](#) (University of Cambridge)(Physics Tree)
|
| (trained grad student)
|
[James Clerk Maxwell](#) (University of Cambridge)(Physics Tree)

Connection from [Isaac Newton](#) to [Johannes Argyropoulos](#):

9 steps:

[Johannes Argyropoulos](#) (Rome, University of Florence)

|

| (trained grad student)

|

[Konstantinos Laskaris](#) (Messina)

|

| (trained grad student)

|

[Antonio Maurolico](#) (Messina)(Physics Tree)

|

| (trained grad student)

|

[Francesco Maurolico](#) (University of Messina)(Physics Tree)

|

| (trained grad student)

|

[Christoph Clavius](#) (Collegio Romano)(Physics Tree)

|

| (trained grad student)

|

[Giuseppe Biancani](#) (College of Parma)(Physics Tree)

|

| (grad student for)

|

[Galileo Galilei](#) (University of Padua)(Physics Tree)

|

| (trained research scientist)

|

[Vincenzo Viviani](#) (University of Pisa)(Physics Tree)

|

| (trained post-doc)

|

[Isaac Barrow](#) (University of Cambridge)(Physics Tree)

|

| (trained grad student)

|

[Isaac Newton](#) (Royal Society of London)(Physics Tree). (1642 - 1727)

13 steps

[Sharaf al-Din al-Tusi](#) (Observatory of Maragha)

|

| (trained grad student)

|

[Kamal al-Din Ibn Yunus](#) (Observatory of Maragha)

|

| (trained grad student)

|

[Nasir al-Din al-Tusi](#) (Observatory of Maragha)

(trained grad student)
[Shams al-Din al-Bukhari](#) (Observatory of Maragha)
(trained grad student)
[Gregor Chioniades](#) (Tabriz)
(trained grad student)
[Manuel Bryennius](#) (Constantinople)
(trained grad student)
[Theodore Metochites](#) (Nicaea)(Neurotree)
(trained grad student)
[Nicephorus Gregoras](#) (Constantinople)(Neurotree)
(trained grad student)
[Gregory Palamas](#) (Mount Athos Monastery)(Neurotree)
(trained grad student)
[Nilus Cabasilas](#) (Constantinople)(Theology Tree)
(trained grad student)
[Demetrios Kydones](#) (Constantinople)(Philosophy Tree)
(trained grad student)
[Georgios Gemistos Plethon](#) (Constantinople, Mystras)(Philosophy Tree)
(trained post-doc)
[Johannes Argyropoulos](#) (Rome, University of Florence)(LinguisTree)

Connection from [Jacob A. Abraham](#) to [Thomas Alva Edison](#):

5 steps:

[Thomas Alva Edison](#) (Edison Laboratory, Menlo Park)(Physics Tree)
|
| (trained research scientist)
|
[Arthur Edwin Kennelly](#) (Massachusetts Institute of Technology)(Physics Tree)

|
 | (trained grad student) (**self taught**)
 |
[Vannevar Bush](#) (Carnegie Institution of Washington)(Computer Science Tree)
 |
 | (trained grad student)
 |
[Samuel H. Caldwell](#) (Massachusetts Institute of Technology)(Computer Science Tree)
 |
 | (trained grad student)
 |
[Edward J. McCluskey](#) (Stanford University) (Computer Science Tree)
 |
 | (trained grad student)
 |
[Jacob A. Abraham](#) (University of Texas at Austin)

My students

