Simple Galaxoid [1]

$$\gamma(t) = (\gamma_x(t), \gamma_y(t)) \tag{1}$$

where γ_x and γ_y are defined after the following discussion.

- Planar or Space?: Planar
  Since the curve is planar, its torsion = 0
- This curve, despite having a fairly complicated equation, can be understood as a combination of 5 clones of a single spiral curve. I find it interesting because, well of its beauty. Further, I devised a method (algorithm) to combine various curves into a single curve, using what I call a cropping function, which may result in large equations, but it achieves its objective without much difficulty. This was the first curve I created using the said algorithm, thus the interest.
- For any given t, only one of the summation terms is non-zero.
- The curvature is the same as that of the 'base' curve, provided it's defined at that point.
- The cropping function is the one that uses Ceiling and Floor functions, and it essentially 'selects' which curve to plot.

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[1] This term has been coined by me.

$$
\begin{aligned}
\gamma_x(t) =&(\lceil m(t-((0)\alpha))\rceil)(\lfloor m(-t+(1\alpha))\rfloor+1)\\
&(\cos((0)2\pi/5)\\
&((t-(0)\alpha))\\
&(1.2^{(t-(0)\alpha)}))\cos((t-(0)\alpha))))\\
&-\sin((0)2\pi/5)\\
&((t-(0)\alpha)\\
&(1.2^{(t-(0)\alpha)})\sin((t-(0)\alpha)))\\
+&(\lceil m(t-((1)\alpha))\rceil)(\lfloor m(-t+(2\alpha))\rfloor+1)\\
&(\cos((1)2\pi/5)\\
&((t-(1)\alpha))\\
&(1.2^{(t-(1)\alpha)}))\cos((t-(1)\alpha))))\\
&-\sin((1)2\pi/5)\\
&((t-(1)\alpha)\\
&(1.2^{(t-(1)\alpha)})\sin((t-(1)\alpha)))\\
+&(\lceil m(t-((2)\alpha))\rceil)(\lfloor m(-t+(3\alpha))\rfloor+1)\\
&(\cos((2)2\pi/5)\\
&((t-(2)\alpha))\\
&(1.2^{(t-(2)\alpha)}))\cos((t-(2)\alpha)))) \qquad (2)\\
&-\sin((2)2\pi/5)\\
&((t-(2)\alpha)\\
&(1.2^{(t-(2)\alpha)})\sin((t-(2)\alpha)))\\
+&(\lceil m(t-((3)\alpha))\rceil)(\lfloor m(-t+(4\alpha))\rfloor+1)\\
&(\cos((3)2\pi/5)\\
&((t-(3)\alpha))\\
&(1.2^{(t-(3)\alpha)}))\cos((t-(3)\alpha))))\\
&-\sin((3)2\pi/5)\\
&((t-(3)\alpha)\\
&(1.2^{(t-(3)\alpha)})\sin((t-(3)\alpha)))\\
+&(\lceil m(t-((4)\alpha))\rceil)(\lfloor m(-t+(5\alpha))\rfloor+1)\\
&(\cos((4)2\pi/5)\\
&((t-(4)\alpha))\\
&(1.2^{(t-(4)\alpha)}))\cos((t-(4)\alpha))))\\
&-\sin((4)2\pi/5)\\
&((t-(4)\alpha)\\
&(1.2^{(t-(4)\alpha)})\sin((t-(4)\alpha)))
\end{aligned}
$$

$$
\begin{aligned}
\gamma_y(t) =& (\lceil m(t-((0)\alpha))\rceil)(\lfloor m(-t+(1\alpha))\rfloor+1) \\
& (\sin((0)2\pi/5) \\
& ((t-(0)\alpha)) \\
& (1.2^{(t-(0)\alpha)}))\cos((t-(0)\alpha)))) \\
& +\cos((0)2\pi/5) \\
& ((t-(0)\alpha) \\
& (1.2^{(t-(0)\alpha)})\sin((t-(0)\alpha))) \\
& +(\lceil m(t-((1)\alpha))\rceil)(\lfloor m(-t+(2\alpha))\rfloor+1) \\
& (\sin((1)2\pi/5) \\
& ((t-(1)\alpha)) \\
& (1.2^{(t-(1)\alpha)}))\cos((t-(1)\alpha)))) \\
& +\cos((1)2\pi/5) \\
& ((t-(1)\alpha) \\
& (1.2^{(t-(1)\alpha)})\sin((t-(1)\alpha))) \\
& +(\lceil m(t-((2)\alpha))\rceil)(\lfloor m(-t+(3\alpha))\rfloor+1) \\
& (\sin((2)2\pi/5) \\
& ((t-(2)\alpha)) \\
& (1.2^{(t-(2)\alpha)}))\cos((t-(2)\alpha)))) \\
& +\cos((2)2\pi/5) \\
& ((t-(2)\alpha) \\
& (1.2^{(t-(2)\alpha)})\sin((t-(2)\alpha))) \\
& +(\lceil m(t-((3)\alpha))\rceil)(\lfloor m(-t+(4\alpha))\rfloor+1) \\
& (\sin((3)2\pi/5) \\
& ((t-(3)\alpha)) \\
& (1.2^{(t-(3)\alpha)}))\cos((t-(3)\alpha)))) \\
& +\cos((3)2\pi/5) \\
& ((t-(3)\alpha) \\
& (1.2^{(t-(3)\alpha)})\sin((t-(3)\alpha))) \\
& +(\lceil m(t-((4)\alpha))\rceil)(\lfloor m(-t+(5\alpha))\rfloor+1) \\
& (\sin((4)2\pi/5) \\
& ((t-(4)\alpha)) \\
& (1.2^{(t-(4)\alpha)}))\cos((t-(4)\alpha)))) \\
& +\cos((4)2\pi/5) \\
& ((t-(4)\alpha) \\
& (1.2^{(t-(4)\alpha)})\sin((t-(4)\alpha)))
\end{aligned} \tag{3}
$$