Controllable Lighting Model for Designing Digital Panorama Maps in the Style of Novat
Nolan Mestres, Romain Vergne, Joëlle Thollot, Arthur Novat

To cite this version:
Nolan Mestres, Romain Vergne, Joëlle Thollot, Arthur Novat. Controllable Lighting Model for Designing Digital Panorama Maps in the Style of Novat. ICA 12th Mountain Cartography Workshop, Apr 2023, Colorado, United States. hal-04070162

HAL Id: hal-04070162
https://inria.hal.science/hal-04070162
Submitted on 15 Apr 2023

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L’archive ouverte pluridisciplinaire HAL, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d’enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.
Controllable Lighting Model for Designing Digital Panorama Maps in the Style of Novat

Nolan Mestres¹, Romain Vergne¹, Joëlle Thollot¹, Arthur Novat² | ¹Univ. Grenoble Alpes, INRIA, CNRS, Grenoble INP | ²Atelier Novat

Analytical Shading
Whatever the shading model (diffuse, aspect based, global illumination,...) having a single light direction results in masking effects and contrast issues.

Multi-scale Local Light Alignment
For each detail scale, we move the light at each point of the surface to maximize contrast between both sides of features.

Multi-scale Adjusted Shadows
We compute a set of light directions to compute multi-scale shadows. We control their length to solve masking while aligning shadows with the relief.

References
- A Stylistic Study of the Winter Panorama Maps of Pierre Novat
  Nolan Mestres
  Cartographic Perspectives 2022. 10.14714/CP100.1753

- Local Light Alignment for Multi-Scale Shape Depiction
  Nolan Mestres, Romain Vergne, Camille Noûs, Joëlle Thollot
  Eurographics 2021. 10.1111/cgf.142656

To be continued...
Cartographic elements:
- roads,
- trees,
- ski tracks...

Combined Result

Chamonix, Atelier Novat

Alpe d'Huez, Atelier Novat

Simple colored shading

Val d'Isère-Tignes, Atelier Novat

Simple colored shading

Our result

Our result

Shading with shadow map and simple color model

Lambert diffuse rendering

Shadow map with a single light

Two scales (grey and black) adjusted shadows

Multiscale Adjusted Shadows

Our result with Local Light Alignment

Combined Result

To be continued...